THE MONTHLY REVIEW

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★

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E. T. CANDEE, *Executive Secretary and Acting Editor*

Box 791, Waterbury, Conn.

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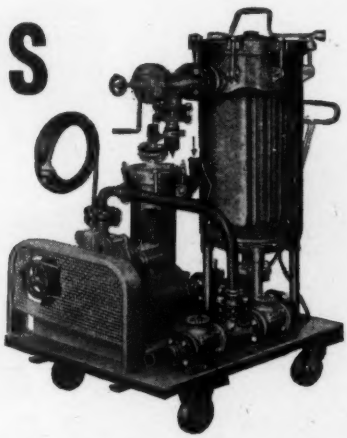

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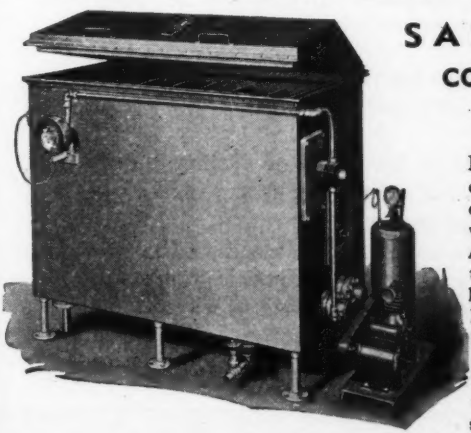

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ETING SPECIFICATIONS

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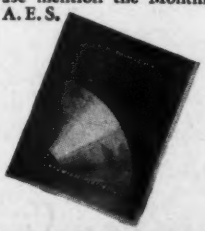

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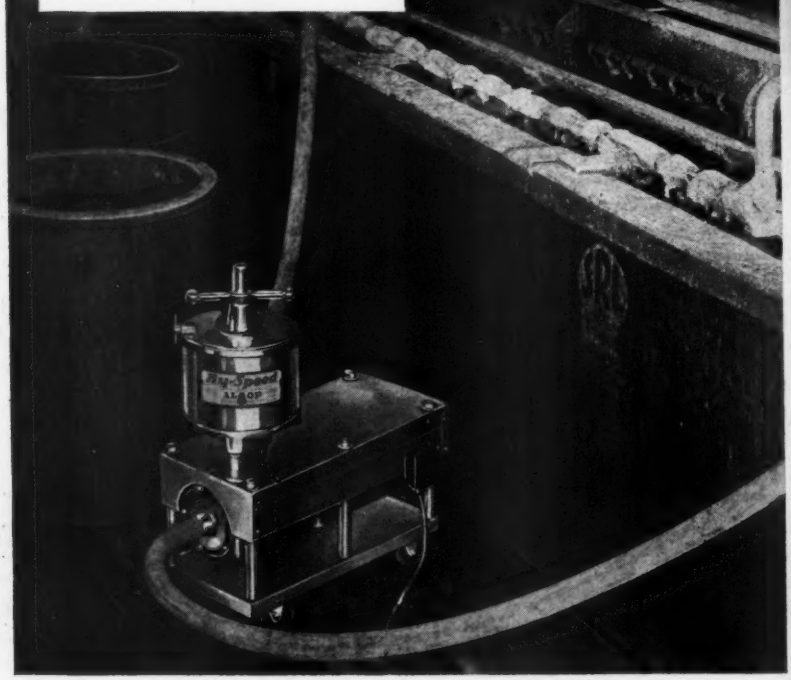
FILTERS



THE MONTHLY REVIEW

THE COVER

Forced-Drying Coatings with Infra-Red Lamps. Courtesy Wyandotte Paint Products Company.

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Lamoureux Award for Papers by Members of Los Angeles Branch

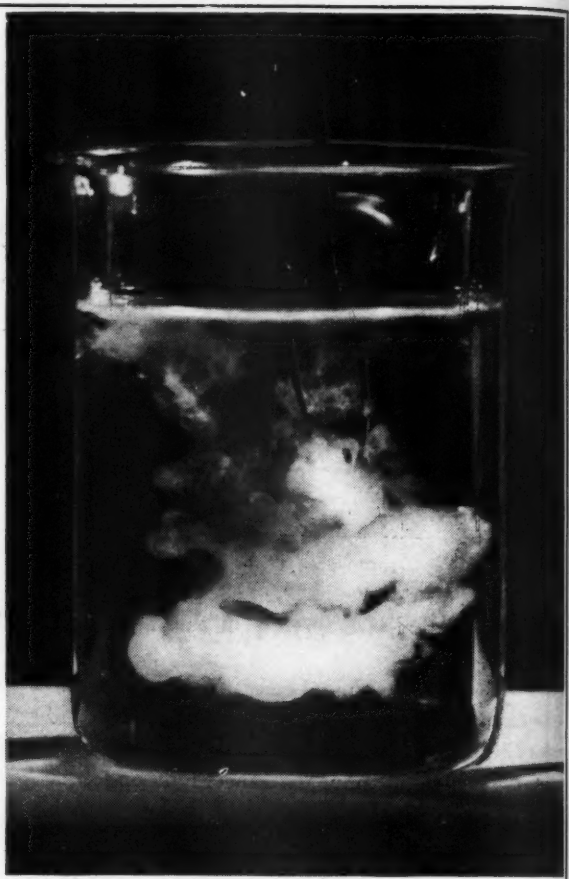
By D. N. ELDRED

Mr. Ernest Lamoureux, a devoted member of the Los Angeles Branch and Honorary Member of the National Society, has given further evidence of his constructive interest in the advancement of the Society.

As announced at the June meeting and clearly presented in detail at the September meeting, Mr. Lamoureux has offered a Medal or Trophy Award for the best paper presented during this fiscal year, by a member of The Los Angeles Branch. Subject matter may be chosen from a broad field and papers will be judged primarily from the standpoint of new ideas presented and other features of value to the membership and our Society as a whole.

The presentation and discussion of timely and needed information at each meeting is fundamental to healthy interest and growth of the Branch. This offer adds an incentive to those members who are willing to put forth the effort to assist their fellows, particularly since the value of the idea or work will outweigh the beauty of language in which it is presented. The Award is both wise and generous.

Enthone Emulsion Cleaner At Work



• Enthone Emulsion Cleaner is for *tough* cleaning problems . where you want to clean solid dirt and heavy oil films rapidly. It enables *complete* cleaning . . . the removal of both solid dirt and organic dirt. It means faster, cheaper cleaning. You have a way of preparing work for plating to insure adherent deposits — to make brighter deposits — to make less porous deposits. You can clean active metals such as zinc, aluminum and lead without etching or staining.

• If you have a difficult cleaning problem, let us help you. Tell us your problem. The advice and technical developments of the Enthone technical staff are yours for the asking.

This photograph shows the rapid, complete dispersive action of Enthone Emulsion Cleaner. Notice that the oil and grease blended with the emulsifiable solvent are being finely dispersed — there is no clotting or jelling.

ENTHONE

THE ENTHONE CO.

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WHAT'S IN IT FOR ME

By ARTHUR R. McNEIL
President Bridgeport Branch

DURING the past ten years I have been constantly in contact with hundreds of young fellows who were just breaking into the plating field and consequently have had the opportunity of getting, first hand, the reactions of a large portion of these men, in regard to the plating industry.

I can't quite recall just how many times in those years that I have been asked this question. "What's in it for me?" No doubt there are many plating supervisors who have been asked this same question. I tried, in the best way I knew how to give a satisfactory answer, but found myself falling quite a bit short of my mark. Perhaps because I had asked myself the same question and wasn't sure of the answer. I believe that I now have the answer.

These youngsters, as I will call them, though I am not too much older than they, did not come to work in the plating room because they were interested in the Electrodeposition of Metals, nor because they immediately saw a future for themselves in the Surface Treatment of Metals, but rather, because they had run into a company that needed help and took the job. Some of them never supposed that they would work in the plating room any longer than was necessary to carry them over to their next job. Some thought it might be a novelty to watch a piece of work go into the tank one color and come out another. Others did not think of it as anything but a job. Life has a queer way of adding its own ending to suppositions of this sort.

We may well liken this beginners' period to the initial voyage of a crew of young merchant seamen. Each having his own reason for signing on. To one, the trip would be something to tell his friends about. To another, it would mean the satisfying of a desire to try something he had heard a lot about. To still another, it was just a job.

Something happened to all these youngsters on this voyage but it was only to the most adventuresome that this something made a defi-

nite impression. To those with the stouter heart, a challenge was offered. A challenge to new trips, new ports, new things. Of no less a challenge to the adventuresome, is the plating industry.

Gone forever is the dark, damp, hole in the cellar, with its hit and miss methods of plating control. In its place is the well lighted, well ventilated, roomy plating department of today, with its laboratory controlled solutions, its mechanically and technically designed equipment and its modern version of the Old Time Plater, the Electroplating Engineer.

These old time platers, who are the Electroplating Engineers of today, deserve a large portion of the credit for this change. For it was they who answered the challenge of the maiden voyage and signed on for new trips, to new ports, to new things. It was these men that helped make it possible for the plating industry to attain the position it now holds in today's world of science.

Now, the old time platers of yesterday issue a challenge to us maiden voyagers of today. You can almost hear them say, we too asked that question, "What's in it for me?" We answered the challenge and have seen many things. Bright Nickels, Hy-Speed Brass and Copper, Chromium such as was never thought possible, Bright Zinc, and the Anodizing of Aluminum. Plus hundreds of other equally important discoveries to better our way of living. Many more things are yet to be developed. Many more changes have yet to take place. The extent and scope of these changes depends to a grat degree on you maiden voyagers. Nothing of importance to the plating industry has ever been developed, and proven, without the help of the men in the plating room. It is reasonable to assume that nothing will be.

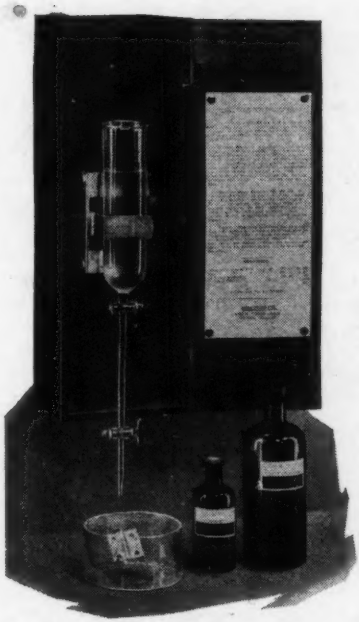
Are we going to accept the challenge of these men or are we going to assume that in view of the tremendous strides they have made, there is nothing left to be gained? Just think of the ports as yet uncharted. Barrel plating of Chromium, Plating of Aluminum upon other metals, Various alloy plating, Automatic solution concentration and PH control, and a never ending chain of others. The rapid progress of the plating industry in the past twenty will be dwarfed by the progress that will be made in the next twenty years.

Stubborn problems that are extremely gratifying when solved, new discoveries that open fields heretofore undreamed of, and a world ever ready to receive new and better processes, for better living.

That's what's in it for you.

ZINC

SOLUTIONS AND DEPOSITS



Controlled with simple direct-reading test sets.

Sets for other solutions, including anodizing, and sets for deposits are also available.

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Don't Stop HALF-WAY
...do the WHOLE JOB!

Careful cleaning of work to be plated is only half the cleaning job—the solution in which the plating is done must be clean, too. Otherwise, impurities in the bath get on the plating surface, and the net result is the same as if the cleaning of the work had not been done completely.

Keeping the solution constantly clean is a simple matter—with DARCO S-51. For regular use of DARCO in the bath assures the *continuous* removal of harmful impurities.

DARCO S-51, an activated carbon, adsorbs grease, oil, soap, colloid molecules, decomposition products—even "invisible" impurities—then removes them from the solution completely with each filtration.

Do the whole job right! Use DARCO S-51. Get it at your dealer's—or write for a sample.

The article "Physical Removal of Impurities from Plating Solutions" discusses continuous filtration in detail. Write for a copy.

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A PLASTICS PRIMER

By ROBERT E. MURRAY

"PLASTICS," says the sensational news writer, "will revolutionize the world ! ! ! ! "

How true is this statement—and how does it affect the electroplater?

An exchange of advertisements in recent national journals will probably do as well to clarify the situation of the post-war role of plastics as anything else. The Aluminum Company of America, pioneers in the metal industry, point out that, "*Plastics do many things better than any other material.*" Meanwhile the Monsanto Chemical Company, one of the foremost plastics producers, bluntly states that, "*no plastic has yet been developed that equals metal in surface hardness, heat resistance, rigidity or structural strength.*"

In other words, there will be many a post-war job that will call for plastics and no other material will satisfy. There will be many another job, the requirements for which will dictate the choice of a metal. Then again, a situation which only the most foresighted have fully appreciated as yet, there is an excellent possibility of combining these two materials to take advantage of the best properties of both.

Electroplaters are cautioned to realize that they are now confronted by a new material or series of materials in Plastics, which they must not disregard. There is a lot they can learn about Plastics. There is a lot they can teach Plastics about electroplating. Plastics engineers, only mildly acquainted with the complex art of the electroplater, expect to enlist and value his aid.

The electroplater probably knows a little about Plastics, maybe even a good deal, but a presentation of a few primary facts, might help. The plastic materials, or "synthetic resins" as they are called, are of two general types. First, there are the THERMOPLASTICS, materials which can be softened by heat and which will harden again when they cool down. Secondly there are the THERMOSETTING materials, which will soften when they are first heated and which will harden permanently on continued heating. Unlike the thermoplastic type, the thermosetting resins can never be re-softened and re-molded and are generally referred

to as being infusible and insoluble. These particular factors have a lot to do with the choice of a plastic for a particular use and will require certain molding and finishing methods.

Molding of a plastic, generally speaking, consists of heating it to soften it, then compressing it under a pressure of a few tons in a hardened steel mold, and finally setting it by either cooling or heating, depending on its nature.

Plastics can be molded into a variety of shapes, reproducing any form with amazing accuracy. Tiny articles like buttons and giant radio cabinets may be molded with equal ease, in rich deep hues, delicate pastels, or any of the beautiful tints encompassed by the spectrum. This colorful advantage is not just "skin-deep," but penetrates through the article, giving it an unparalleled depth of beauty. Oft seen are plastics with better transparency than glass or as opaque as stone, plastics like mother-of-pearl or marble.

There are about a dozen present day plastics which are economically significant. Each of them is a separate chemical compound and has a separate set of physical properties, many of which are highly desirable. They possess excellent insulating qualities, both in regard to heat and electricity. Some are highly resistant to water, vegetable oils, petroleum, acids, alkalies, organic solvents, etc.

It is quite clear then, that plastics must be no passing fancy, no temporary fad like jig-saw puzzles or gin-rummy; but rather one of the miracles of our times. A miracle which we should not over-estimate, and which we must definitely not overlook.

The correct attitude of the electroplater is that of one with whom I discussed the plastics picture in his shop a short while ago. A manufacturer of fine silvers, he had a gleam of anticipation as he outlined one post-war dream, in which he will combine the richness of a plastic with the regal loveliness of sterling.

The electroplating of finished plastic articles is a recent and fascinating development. Its possibilities have by no means been explored or exhausted, but it is a field where the electroplater has the plastics man quite under his thumb. Electroplating technique remains substantially unchanged, and requires only the individual ingenuity that was needed in any problem. The discovery of a proper bond coat pretty

well hurdled the opening difficulty and set metal-coated plastics on their way.

Metal coatings may be used with plastics for a variety of reasons. First, to impart the metallic luster to an article like a bottle closure, a decorative button or novelty jewelry, which if made entirely of metal might be prohibitively expensive for the price field in which it is offered.

Metal may be coated on a plastic to impart to it the capability of carrying an electric current, or to protect it from the action of some otherwise corrosive chemical.

Small articles of complicated shapes are often fashioned from metal and then chromium plated. A considerable saving can be made by molding the intricate shape from a plastic, and then plating with chromium to obtain the identical appearance. The product will then be lighter and more resistant to bending and denting.

Plastic articles which are only partly coated with metal will combine contrasting appearances of both, as in knife handles, pen and pencil barrels, musical instruments, bracelets, etc. Similarly, by partial coating, an object may have both insulating and conducting properties, opening a new idea in the condenser field.

An electroplating process still in its infancy is the production of molds. A highly polished metal hob is suspended in an electroplating bath to receive a heavy coat of iron. Stripped from the hob, it serves as the cavity of a mold for plastics. The electroformed mold is about one quarter of an inch thick and is built up to standard mold thickness by sprayed iron. The mass must be heat-hardened. Accuracy of reproduction of intricate designs seems to be the chief advantage which this method holds over other methods of mold manufacture.

Depositing chromium according to electroplating procedures upon the cavity walls of a hardened steel mold increases the resistance to wear and tear and definitely prolongs its life.

These are some of the more important ways in which the foresighted electroplater has already fostered the kinship between the metals and plastics. Your shop may think of others. Plan now to think of plastics along with your metals, for plastics are here. Here in the life of the artist, the craftsman, the plumber, the wood-worker and also in the life of the metal worker. Acquaint yourself with it at every opportunity.

THE WYANDOTTE Representative can be in your plant, if you wish. He can provide skilled technical help on your metal cleaning problems . . . help he's been trained by many years of *know-how* to provide.

Under wartime pressure, metal finishers can't wait. When one job's finished, another is instantly at hand. And that means the *swiftest* and most exacting cleaning and degreasing operations are indispensable.

Wyandotte Metal Cleaners provide the answer . . . *best* results, *big* savings. Compounds for armament and airplane parts manufacturing, automotive equipment, and for use in water wash spray booths are all Wyandotte specialties.

Let Wyandotte help chart your way to peak efficiency in all cleaning and degreasing operations. Just call in the Wyandotte representative. He's at your service 24 hours a day.

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Here's proof that it's the finish *on the job* that counts —not the finish in the drum. Seldom has finish been called on to stand up under such grueling conditions as on the steel cartridge cases used to replace brass. Inside and outside the case, in all climates, against a wide variety of corroding agents, right into the breech of the gun—this finish must be perfect.

In creating its steel cartridge case finish that exceeds even rigid Government requirements, Zapon technicians relied on no mere formulation, no products that might be mathematically good in the drum but an unknown quantity on the job. They worked synergistically, put their brains together with those of military men and cartridge case manufacturers. The results, as usual when synergism is employed, surpassed expectations.

Synergism as practiced within Zapon and with customers pays minute attention to production methods and procedures for doing the most efficient job of finishing. But above all, the final result, the finish in action and how it will fare, are paramount. With the synergistic approach, finishes on the job prove out. Let's talk over your problems.

WHAT IS SYNERGISM?

In Synergism, forces—minds—work together to produce results greater than both working separately might achieve, making 2 + 2 = 5.

ZAPON

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Eastern Sales: Stamford, Conn. Western Sales: North Chicago, Ill.

INDUSTRIAL FINISHES

AFTER SELECTIVE PLATING

Clean, Sharp LINES OF DEMARCATION

On Parts Which Were Masked With MICCRO - SUPREME STOP-OFF LACQUERS

Gear above was masked to permit silver plating of bearing surfaces only.

Part to right was masked for copper plating prior to carburizing. Gear teeth only were stopped off.

Miccro-Supreme Stop-Off Lacquers HR-302 (Red) and HB-401 (Black) are used for the masking of parts prior to selective plating. They provide exceptional adhesive qualities which assure a clear line of demarcation. They can, however, be quickly and easily removed, permitting thorough cleaning of all parts which have been coated. Because of their rapid air-drying qualities, time between coating and preparation for plating is reduced to a minimum.

These materials are perfectly neutral, containing no acids or other harmful ingredients, hence will not etch or stain the surface of precision lapped or super-finished parts. WRITE FOR FULL DETAILS.

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The Fundamentals of Chemistry for Electroplaters

Part 1. Elements and Compounds

By SAMUEL GLASSTONE, D.Sc., Ph.D.

INTRODUCTION

THE purpose of this new series of articles is to present the fundamentals of chemistry in so far as they have some bearing on the principles and practice of electroplating. The articles are offered as an introduction for those readers who have had little or no training in formal chemistry, and as a means of refreshing their knowledge for those who have not had contact with the subject for some time. As the series develops, it will be seen that the topics chosen for treatment have a direct or indirect connection with the work of the electroplater. As far as possible, no specialized knowledge will be assumed, and consequently the development will commence with the simplest aspects of chemistry. It is hoped, therefore, that the reader with some knowledge of the subject will bear with the writer, for the sake of those who are less familiar with it.

ELEMENTS AND COMPOUNDS

Although there are many hundreds of thousands of different materials, which exist in nature or have been manufactured artificially in different ways, chemical and other studies have brought to light the important fact that all known substances are built up from no more than 92 different species. In other words, there are only 92 different fundamental types of matter. The study of the constitution, properties and relationships of the thousands of known substances, which is the purpose of chemistry, thus reduces itself to the study of these fundamental units, or "elements," as they are generally called. Some substances, such as the oxygen and nitrogen gases that make up about 99 percent of the air, consist of one element only. Others, such as water, ammonia and gasoline, are made up of two elements, while still others are built up by the union of three or more elements.

The number of different elements in any material is rarely more

than about five or six, but by joining them up in different ways it is possible to produce a great variety of different materials, known as "compounds." A compound is a substance, with entirely different properties, that is formed by the chemical union of two or more elements; such union is very frequently accompanied by the evolution of heat. It is important in this connection to distinguish between a compound and a mixture. As a general rule, a mixture has properties which are intermediate between those of its constituents, but a compound will almost invariably have entirely new properties. Further, the composition of a mixture is indefinite and can vary over a wide range, but a compound, as will be seen in the next article, has a perfectly definite and exactly known composition. For example, hydrogen and oxygen are both elements that are gases; these gases can be mixed and the resulting mixture will still be a gas. By various means it is possible to separate the two gases in the mixture. Now if the two elements, hydrogen and oxygen, are made to unite with one another chemically, the result is a liquid, namely, water. Water is a compound of hydrogen and oxygen, and it contains these elements in a perfectly definite proportion. Further, it is not easily broken down into its constituents, as would be the case for a mixture. It is possible to split up water into hydrogen and oxygen, but this requires the use of an electric current or a very high temperature.

PROPERTIES OF COMPOUNDS

The properties of a compound generally bear no relationship to those of the elements from which it is composed, although a knowledge of chemistry frequently permits one to foretell the kind of properties to be expected. Some compounds, such as carbon dioxide and ammonia, are gases under ordinary conditions, some are liquids, such as water, sulfuric acid, alcohol, etc., while many are solid, such as common salt (sodium chloride), silver nitrate, potassium cyanide, and numerous other familiar substances. Elements may likewise be liquid, solid or gas, but there is not always an obvious connection between the state of a compound and that of the elements which make it up. A variety of other properties, such as acidity, alkalinity, odor, taste, solubility and volatility, may also develop as the result of certain combinations of particular elements.

Altogether, it is believed that there are about three hundred thousand different compounds. The great majority of these, however, do not

exist in nature, but have been prepared in the laboratory. Many of them are dyestuffs, medicinal agents, flavoring materials, and so on, having properties of commercial value. Such substances are generally "organic compounds," that is, compounds of the element carbon. Fortunately the number of elements and compounds that are of interest to the electroplater is quite small, and the treatment in these articles will be restricted, as far as possible, to these substances only.

WHAT IS AN ELEMENT?

Until the beginning of the present century it was not difficult to define an element; it was described as a form of matter which could not in any way be split up or changed into other forms of matter. Thus, a compound can be broken down into its elements, but an element could not be split up further. However, the discoveries made during the past forty or fifty years have made it difficult to give an exact definition of an element, although there is no doubt concerning which substances are elements and which are not. It was found, for example, that certain radio-active substances, such as uranium, radium and thorium, which are undoubtedly elements, nevertheless split up spontaneously into other, simpler, elements. Frequently the resulting elements are themselves radioactive and split up further. By no known means, however, can the rate at which a radioactive element breaks up, or "disintegrates," be affected.

In addition to the natural or spontaneous type of disintegration, it has been found possible, in recent years, to bring about an artificial disintegration or transmutation of one element into another. This is generally achieved by the bombardment of the element with certain electrically charged particles moving with extremely high speeds, such as are obtained in the instrument known as the "cyclotron." It is therefore no longer true to say that an element cannot be split up or changed in any way, and hence a new definition of an element must be sought. It is obvious that the methods of achieving artificial disintegration are not ordinary chemical reactions; the amounts of energy involved in the former case are something like a million times as great as in the latter. Consequently, an element may be defined as a form of matter which cannot be decomposed into or produced from simpler forms of matter *by means of ordinary chemical processes.* As mentioned above, there are good reasons for stating that no more than 92 substances in nature are elements that satisfy this requirement. Actually

four of these elements have not yet been definitely detected, but the possibility of their existence can be inferred with certainty, as will be seen in a later article.

SYMBOLS

For identification, and other purposes the chemist has found it convenient to represent each element by a suitable symbol. These symbols consist of one or two letters, generally the first letters of the English or Latin name of the element. Hydrogen, carbon, nitrogen and oxygen are represented by the single letters H, C, N and O, respectively. The symbol for chlorine is Cl, since C is already used for carbon. For iron, which in Latin is *ferrum*, the symbol Fe is employed. By combining the symbols of the elements constituting a particular compound, it is possible to obtain the symbol or "formula," as it is generally called, for the compound. Before this can be done, however, it is necessary to know something of the way in which compounds are built up from their elements, and this matter will be taken up in the next article.

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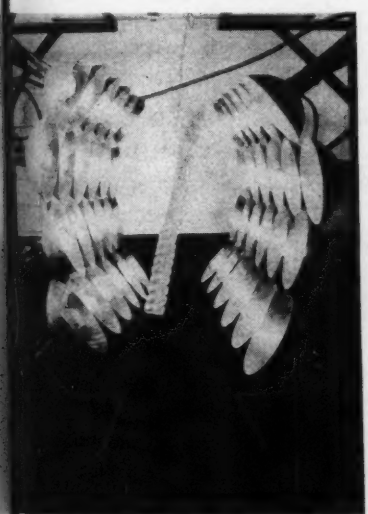
Eliminating Working Differential between Laboratory Plating and Production Line

By JACK McGEE

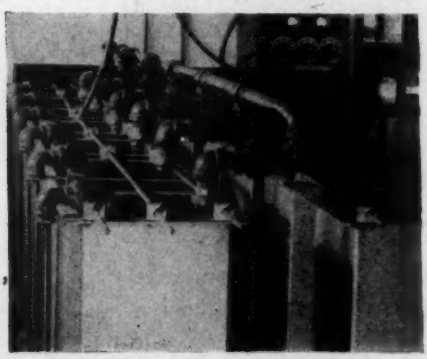
Chief Chemist, Wyandotte Paint Products Co.

I THINK it will be generally conceded that results obtained by laboratory beaker plating are not often duplicated in production plating without costly delays and a sizable output of work, expense and time. This is readily appreciated when the facts are carefully weighed. In the laboratory all the plating conditions are ideal—temperature of the solution is easily controlled by mechanical means—the small volume lends itself to almost perfect control with a plus or minus of only two or three degrees—equipment is thoroughly clean—the solution, being generally fresh and most likely unworked, is contamination free, and the beaker tank, being glass, gives a perfect insulation.



Forced-drying coatings with infra-red lamps.

Expanding these laboratory results to a thousand gallon production tank is more than a mere conversion by multiplication—many values must be taken into consideration—values on which



View of Laboratory showing cleaning and plating tanks.

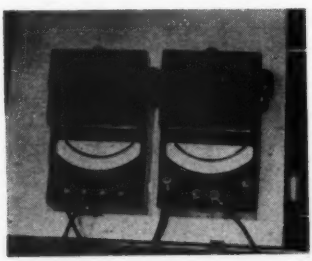
there are no conversion tables—chemical and mechanical variables which can not be expounded and theorized by chemical formulae or mathematics.

The laboratory results must be taken through an intermediate step. The old proverb "There is many a slip between the cup and the lip" is in many an instance applicable to results between laboratory plating and production plating. Especially today, when the war effort demands speed and tolerances to the minutest degree, does this difference demand some correcting medium.

Routine pH check of plating solutions.

The "Slip" must be eliminated—but how?

The one greatest stride toward correcting this working differential, is the incorporation of what is called a "pilot plating plant" between the laboratory and the production line. I think we have all experienced the pains and discouragement derived from failure of a production job paralleling laboratory results on which hours or days of tedious labor and patience were spent. This recognized flaw is applicable to any phase of electroplating and electrodeposition whether it be for the inovation of plating technique and methods, the improving of chemicals, anodes, mechanical equipment, tank linings, rack insulations, stop-off lacquers and compounds, or the preliminary laboratory work necessary before entering a complex plating job onto the production line. The pilot plant pictured and listed in this article is the direct result of the need for some guarantee of success when laboratory work is being converted to production.



Ammeter and voltmeter check on current densities.

This plant is fed electrically through a standard rectifier. Tanks operate with an eleven gallon charge of solution which we have found to give identical results to production tanks. Also these eleven gallon tank charges are large enough to be analyzed and corrected in event of error through compounding or in the working. The tanks are steam heated by individual one (1) inch pipes—48 inches of pipe are used in the individual

heating coils—each coil is controlled by a graduated valve. In the anodizing tank the coil is connected to the cold water line and has been found to keep the anodizing bath to the correct temperature without additional mechanical means of cooling. The cathode carrier bar is rigged to a reducing unit and motor which creates a continuous backward and forward motion equivalent to the speed of an automatic production unit. Also not pictured is a 60 gallon tank which can be charged for a test job on objects which are oversize and too bulky for the eleven gallon tanks. It is essential that this model plant include all the apparatus necessary for analysis—instruments required to measure the physical properties of the operating solution and plating equipment and the plate of the finished object. In the pictures we have attempted to show only the plating apparatus. Our analytical section is complete but not pictured and the equipment will not be listed in this article as it is the orthodox set-up with which we are all familiar.

The pilot plant is composed of the following basic equipment.

Hot Water Rinse Tank
Cold Water Rinse Tank
Alkaline Cleaner Tank (includes break switch for converting to anode or cathode)
Acid Crock
Anodizing Tank
Hard Chrome Tank
Iron Tank
Hi-Speed Copper Tank
Silver Tank
Nickel Tank
Cadmium Tank
Zinc Tank
Tin Tank
1 - 60 gallon tank which may be used as is or sprayed with insulation as the case dictates
Production Rectifier
Individual Carbon File Rheostat
Tong Meter
Magnetic Micrometer
Ammeter (0 to 25 amps.)
Voltmeter (0 to 30 volts)
Electrical pH Indicator
Bake Oven

Also included in this equipment which is not essential but in many cases desirable is coating and drying apparatus. Included and pictured above is a set of 48 260 Watt Infra-Red Lamps, not pictured is a Gas and an Electrical oven. These items are for the purpose of experimental work in the force drying and baking of Coatings such as are used in Plating Plants—i.e., Corrosion resistant paints, tank linings, rack coatings, stop-off lacquers and compounds. Spraying and dipping equipment is also included. Drawings and complete information on this model plant are available by contacting the writer.

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GRAND RAPIDS BRANCH

What chemical should be used as a brightener in a silver plate?

Ans. The most common brightener used in silver solutions is carbon disulphide.

How can heavy scale be removed from carburized steel parts without altering the Rockwell Hardness of the surface?

Ans. Sandblasting is considered best for removing scale on carburized parts.

Fundamentally, how do steel, aluminum, and brass cleaners differ in composition?

Ans. In general, steel cleaners are high in active alkalinity and mildly buffered. Brass cleaners are usually strongly buffered and have a lower active alkalinity. Aluminum cleaners have a low pH and are usually inhibited so as not to attack the aluminum.

Many other factors must be considered in the composition of a cleaner depending upon the purpose for which it is intended.

Why is it sometimes requested that non-silicate cleaners be used for cleaning zinc base die castings?

Ans. It is contended by some finishing chemists that cleaners of high silicate content tend to passivate the surface of the zinc die casting by a thin film of silicate becoming deposited on or absorbed into the surfaces being cleaned. It is contended that this film is not removed by the conventional acid dipping in ordinary acid dips such as sulphuric or muriatic acid and subsequently lowers the protective value of the castings applied to the castings.

How can waste acid from pickling solutions be disposed of?

Ans. An often used process is to schedule the dumping of cleaners and acids at the same time, so that the waste alkali neutralizes the waste acid as it enters the drain.

What method is used for removing the residual residue left on steel forgings after magnafluxing?

Ans. In order to remove the tenacious red oxide, a wash in mineral spirits has been found to be effective.

What is the best method of "stopping off" internal threaded surfaces during hard chrome plating?

Ans. There are several "stop offs" which could be used. Several members found that lead foil shaped to conform with the threaded surfaces and had proved to be the ideal method.

What is a good strip solution for removing lead plating or solder from steel?

Ans. A solution of 16 ounces per gallon of caustic soda. Make the work anodic and a temperature of 180°-190°F.

Some members have had trouble depositing zinc and cadmium on heat treated chrome-moly steel free from blisters. Are there any special operations

necessary to avoid blistering in plating this material?

Ans. Ordinarily if the parts are sand blasted following heat treatment no trouble is encountered. However, if heat treatment scale is removed by pickling with inhibited acid a subsequent treatment in 20% Nitric acid followed by the conventional preplating operations has proven satisfactory.

What cleaning procedures should be used before the phosphate treatment of steel surfaces?

Ans. The surfaces must be free from foreign matter. This can be done by the use of alkaline cleaning solutions. In general it is desirable to use a mild non-inhibited cleaner to remove the soil. The cleaner should be free rinsing as alkaline "carry over" is undesirable. A weak dip of oxalic acid preceding phosphating is sometimes advisable where a fine grained coating is desired.

What is Sheradizing?

Ans. Sheradizing is a method of coating steel articles with zinc. The steel parts are packed in powdered zinc, in a sealed container and heated to about 700°F for several hours.

How can one determine whether a degreaser or an alkali washing machine is best fitted for any particular cleaning operation?

Ans. The answer to this question depends upon several factors, the most important of which is the nature of the dirt or soil to be removed. Each method has its merits and disadvantages. In general a degreaser will perform most efficiently in removing the heavy non-saponfying type of oils and greases. An alkali power washer will generally remove insoluble matter suspended in an oil or grease film on work to be cleaned, better than a degreaser. This is because the hot solvent of a degreaser leach's out the oil of the film and leaves the insoluble matter adhering to the work being cleaned. In the alkali power washer this is overcome by applying the hot alkali cleaning solution at a high pressure to the surface being cleaned and removing the insoluble matter by mechanical action, while the hot alkali removes the oil film.

Can anyone give us any information concerning new developments on the plating of plastics?

Ans. Several patents have been issued recently on the application of metal coating to plastics. A method which is gaining some recognition is a process in which the plastic articles are first coated with an adherent silver film.

Solutions similar to those used from silvering mirrors.

It is said that after the silver film is applied conventioned plating methods can be used.

In the pretreatment or cleaning of steel surfaces prior to hard chrome plating, is better adhesion obtained using a chromic acid solution containing no sulphuric acid or sulphate or one containing sulphuric acid or sulphate?

Ans. In answering this question it may be asked—what type of adhesion is to be considered good adhesion? Experimental work using heat treated chrome-moly steel tubing on which the chrome is applied for wear resistance, it has been found that satisfactory adhesion can be obtained using a great variety of preplating operations. It was found that a preplating treatment consisting of making the steel tubes the anode in chromic acid solutions containing sulphuric acid in ratio from 100-1 down to 5-1 and at amperages up to 1000 amps/sq. ft., an electropolishing action developed which left the surface bright and free of smut. Chromium deposited on this surface proved to have very good adhesion. However, satisfactory adhesion can also be obtained by using chromic acid solutions containing no sulphates or sulphuric acid. It depends entirely upon the results desired as far as which treatment will prove to be the best.

What effect does the ratio of sulphate to chromic acid have upon the so-called chrome crocks in hard chrome plating?

Ans. In general the lower the sulphate to chromic acid ratio, (higher the sulphate) the smaller the crock pattern.

H. CASTLE, *Assistant Librarian*

INDUSTRY NEWS

ANDERSON, CINCINNATI, DAYTON REGIONAL

A Regional Meeting of the Indianapolis, Anderson, Cincinnati and Dayton Branches of The American Electroplaters Society will be held at the Miami Hotel in Dayton, Ohio, on Saturday evening, November 6, 1943.

The general technical meeting will follow a dinner at which the principal speaker will be Dr. Gustav Egloff, President of The American Institute of Chemists and Director of Research of Universal Oil Products Company, Chicago.

The author of nearly 500 technical articles and the holder of several hundred patents, Dr. Egloff is considered one of the world's outstanding authorities in the cracking of petroleum for the production of gasoline and other petroleum products. His address will be on "A World at War and the Postwar Era."

The Dayton Branch is sponsoring the meeting and has extended an invitation to all members of the engineering and technical societies in the Region to attend.

AMERICAN STANDARDS ASSOCIATION REVISES CODE FOR ABRASIVE WHEELS

The American Standards Association announced approval of an important revision of the Abrasive Wheel Safety Code, which is so widely used that it has been called the Bible of the Grinding Industry. This is the first revision of this Code since 1935.

New sections have been added to keep pace with changes in the industry. Completely new rules have been written for mounted wheels. New speed rules have been drawn up for crankshaft grinding, camshaft grinding and thread grinding operations. While the basic speed tables

remain the same, the Code has been carefully reviewed and many points have been clarified.

Need for a revision of the Code became increasingly apparent during the period of expanding war industries. Several types of abrasive wheels and grinding operations which previously had very limited usage, found an important place in the new industries. For some of these, there were no operating rules whatever in the old Code, while for others, it has been necessary to resort to the use of the permissible exceptions to existing rules. In some cases, the speed rules remain unchanged, and in others, higher speeds have been approved if and when necessary, but always under proper control. Proper relationship between testing speed and operating speed for all classes of wheels has also been clarified.

New specifications are included for drawn steel protection hoods for portable grinders. This allows the use of lighter weight guards than were required by the specifications in the 1935 edition. It is hoped that this will encourage the wider use of guards on a class of work where enforcement of the rule on guarding is frequently lax, due in part to the fact that fabricated hoods called for in the old Code were too heavy to be practical.

The appendix of this standard is of particular interest. It contains a great deal of information on subjects related to safety in grinding and should serve to give a further understanding of the rules in the Code. For instance, the difference in strength properties of various types of wheels is discussed in considerable detail. Another section of the appendix explains the meaning of "critical speed" as related to the operation of mounted points and wheels.

Considerable research and engineering work preceded the formulation of some of the new rules and specifications. The operating rules and critical speed tables for mounted wheels and points were prepared only after a comprehensive study of the whole subject requiring well over a year, and including a great deal of actual testing under controlled conditions. Before approving the lighter weight drawn steel guards for portable grinders, samples were tested by breaking wheels in them and observing the results.

The Grinding Wheel Manufacturers' Association, and particularly its Safety Committee, took the leading part in the revision of this Code. Because of the extent of the revisions, a special Steering Committee was appointed to guide the progress and direction of the work. This com-

mittee was composed of: Mr. John W. Welch, Chairman, Mr. A. Rousseau, Assistant Manager of the Norton Co., Secretary, Mr. George E. Sanford, Safety Engineer of General Electric Co., and Mr. J. B. Chalmers, Director of Training at the Yale & Towne Mfg. Co.

The Safety Code for the Use, Care, and Protection of Abrasive Wheels (B7-1943) may be obtained from the American Standards Association, 29 West 39th Street, New York 18, N. Y. at 35c per copy.

Review copy available from American Standards Association on request.

DETROIT ANNUAL MEETING

December 4th has been selected by the Detroit Branch as the date for their Annual Meeting. The big "doins" will be held at Hotel Statler.

1944 CONVENTION

Plans are already under way for the 1944 Convention of A. E. S. to be held at Cleveland Hotel, Cleveland, Ohio, June 12, 13, 14.

Listed below are the chairmen appointed to head the various committees:

General Chairman	Mr. William D. Scott Suite # 1 9914 Madison Ave. Cleveland 11, Ohio
Educational Chairman	Mr. John Honnecker 2030 Revely Road Lakewood, Ohio
Hotel Reservations	Mr. P. R. Lyons 20987 Moorewood Pkwy. Rocky River, Ohio
Registration	Mr. William E. O'Berg 10211 Garfield Drive Garfield Heights, Ohio
Publicity	Mr. E. Steen Thompson 905 West 10th Street Erie, Penna.
Entertainment	Mr. Stephen F. Miller 6206 Manchester Road Parma, Ohio

32ND ANNUAL BANQUET AND EDUCATIONAL SESSION

To be held Saturday, January 22, 1944

at The Palmer House. The Educational Session will be held from 2 to 4:30 P.M. The Banquet will be held in the GRAND BALL ROOM at 7 P.M. sharp. Tickets are $5.00 each and can be secured now from the Secretary,

J. W. Hanlon, 3004 N. Whipple St.,
Chicago, Ill.

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KELITE NAMES SINCLAIR

Lee S. Sinclair, Jr. has been appointed to the laboratory staff of Kelite Products, Inc. He will work at the main plant in Los Angeles.

Mr. Sinclair was formerly in charge of the Maytag Company's laboratory in Newton, Iowa, and is a graduate (chemical engineering) of Iowa State.

WELCOME JACKSON BRANCH

All members of A. E. S. extend a hearty welcome to the newly formed Branch at Jackson, Michigan. Two meetings have been held to date with the following officers elected:

Mr. Atkin, Sparks-Withington Co., President
Mr. McKeon, Reo Motors, Vice-President
Mr. Nordman, Sparks-Withington Co., Secretary & Treasurer
Mr. Webb, Detrex, Librarian
Mr. Michner, Michner Plating Co., Mr. Straight, Oldsmobile, and Mr. Bennet, Oldsmobile, Board of Managers.

It is suggested the secretaries of other branches as well as the National Officers, extend the warm hand of friendship to the latest addition to our growing society.

NEW PACKER BULLETIN

The Packer Machine Company of Meriden, Conn., Manufacturers of Automatic Buffing, Burring, Deburring and Grinding Machines, has announced Bulletin #14 just off the press. The bulletin features modern finishing machines that increase production with quality finish at low cost. Numerous odd shaped parts are illustrated which can be finished effectively with the manufacturers equipment. Those interested can obtain the bulletin by writing direct to the manufacturer.

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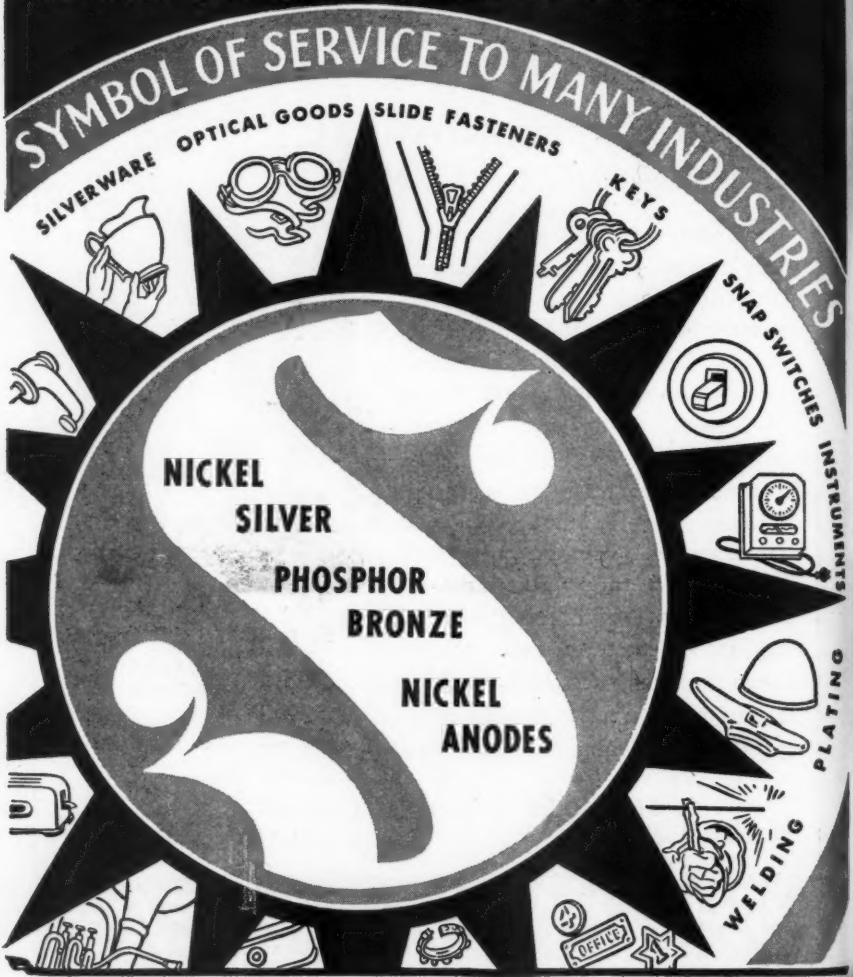
In the 65 years that "Seymour" has been making nonferrous alloys, service has spread to every metal working industry. In this period, three wars have drawn heavily upon, and materially developed the uses for, "Seymour" products. In the present war, knowledge of these products is being gained that should have a far-reaching postwar value, for no previous war or peace has exacted the ingenuity that is fast becoming plant routine!

Peace will come — and with it need for large scale rehabilitation . . . . in which "Seymour" looks forward to enthusiastic participation.



"Ringing the Bell"

IN

HARD CHROME

Calls for D-2530 RACKOTE STOP-OFF LACQUER

Engineered for Production. This tough flexible coating is continually "Ringing the Bell" in Hard Chrome Departments all over the country. On plating lines where the speed and ease of application, fast drying, perfect insulating on long immersions and easy stripping are absolute requisites D-2530 is in constant and proven use. Its selection by a number of the largest producers of airplanes, marine and aircraft engines, aircraft landing gears and other highly technical items is testimonial of D-2530's ability to render perfect service.

Write for Literature!

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LOCKHEED
P-38
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METHODS and MATERIALS

for BURRING, POLISHING and BUFFING, have a hand in th

Aptly termed "a sword on two bullets", the Lockheed P-38 is doing a swell job for us on all the battlefronts. She's fast, hard-hitting, high-flying, well-protected, versatile. She's a ship the Air Force can be—and is—proud of!

To get a ship like the P-38 off the assembly line is a real job calling for the best in engineering and manufacturing skill. With thousands of parts being prepared and assembled, precision and close tolerances are controlling factors. Countless burring, polishing and buffing operations have to be carefully planned and carried out.

roduction of this Fast Fighter

That LEA Methods and LEA Materials were selected for many of these operations is, we like to feel, a recognition of our knowledge of and experience with such problems. We are serving many, many war industries in a similar capacity.

THE LEA MANUFACTURING CO.

Waterbury 86, Conn.

Burring, Buffing and Polishing . . . Specialists in the Development of Production Methods and Compositions

7-LM-6

NEW HOWARD CATALOG DESCRIBES LATEST IN METAL CLEANING AND FINISHING MACHINERY

Important new data and applications for metal cleaning and finishing machinery—both for war and post-war use—is contained in a new 32 page catalog and manual issued by the Howard Engineering and Mfg. Co., 1838 Freeman Avenue, Cincinnati, Ohio.

Problems involved in cleaning and finishing metal parts are described and illustrated in detail. Information is presented on the various types of cleaning machines, methods, and materials. Representative types of Howard machines are shown with detailed analyses of their operations. Sections of the book also describe cooling and drying equipment, Howard's experimental department, services and facilities.

A copy of the book will be sent on letterhead request.

TRI-MUR-LITE C I

Murphy Chemical Corporation, 480 Lexington Ave., New York, announce a new folder is ready for distribution on TRI-MUR-LITE C-I, a cold cleaning process.

The manufacturer claims non-essential ingredients are used. In view of the new restrictions on trichlorethylene, it may be of interest to many platers to investigate this product.

According to the manufacturer TRI-MUR-LITE C-I is so penetrating it may be used COLD for every purpose where vapor degreasers used hot are employed. It is also claimed TRI-MUR-LITE C-I is far more penetrating than either carbon tetrachloride or trichlorethylene

and instead of thinning out greases converts them instantly into a water soluble thin liquid which will combine with water upon contact and rinse free. Further the product is non-toxic, contains no acids, phenols, alcohol, chlorine or alkalies. It is non-injurious to user or surface cleaned and has no fumes or disagreeable odor. Write for folder or information.

OAKITE COMPOUND NO. 84

How the removal of many types of oxide films and stains, light rust deposits, heat treat films, annealing scales, soldering and brazing fluxes and similar accumulations from aircraft parts, ordnance materiel and other essential war supply items is being speedily accomplished by specially designed acid-detergent techniques, is the subject of a new, 12-page, illustrated instruction manual, just issued by Oakite Products, Inc., New York.

Incorporating the latest technical data in its pages, the manual describes successfully used formulae and methods for applying a recently developed, acid-type material, known as Oakite Compound No. 84. Usually used after thorough alkaline degreasing of surfaces, it is reported that this material is expediting such diverse war production jobs as: removing oxide films and stains as well as light rust from steel; detarnishing and brightening brass and copper; safely ridding aluminum surfaces of oxide and heat treat films; preparing aluminum for anodizing; cleaning before application of Alrok Finishes; stripping anodizing from aluminum work racks and rejects; and tumbling small steel parts. Also given is data on cleaning factory, foundry and mill skylights and windows with this material where rust, carbon, soot, shop dirt and other soils are encountered.

Copies of this informative manual are free on request to technical supervisors, metallurgical engineers, works managers, factory superintendents and other production executives. Write to Oakite Products, Inc., 40 Thames Street, New York 6, N. Y.

NEW CHEMICAL STONEWARE RESISTS THERMAL SHOCKS

A new chemical stoneware that will withstand violent thermal shocks has just been announced by The U. S. Stoneware Company, Akron, Ohio.

Known as "Ceratherm 500," it is the first low-porosity chemical stoneware in the history of ceramics that can be heated by direct steam or hot gases, and can be cooled quickly.

Chemical stoneware has long been the only material of construction completely inert to the attack of all acids, alkalies, and solvents (with the exception of hydrofluoric acid and hot caustics.)

Unfortunately, chemical stoneware was fragile and could not withstand thermal stress. Heating by steam or hot gases was impossible. Likewise repeated heating and cooling weakened body structure.

"Ceratherm 500" actually increases in strength, however, when heated to 400°F and quenched, and shows no loss of strength after repeated heating to this temperature and cooling.

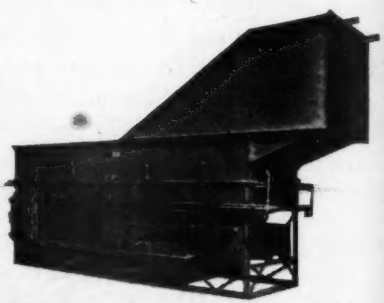
The new body eliminates a large part of the glassy bond of high silica common to clay bodies. The new body is 27% stronger, has low porosity, high thermal conductivity.

"Ceratherm 500" is now in large scale production on such items as tanks, crocks, boiling kettles, mixing kettles, cooling and condensing coils, evaporating dishes, pumps, sinks, pipe, etc. Its cost is only a

BLAKESLEE DEGREASERS SPEED-UP PRODUCTION

Maintain production and obtain 100% grease-free metal surfaces with Blakeslee Degreasers. Efficient engineering design and construction insures prc duction and *lowest* solvent operating costs.

We would welcome the opportunity of discussing the application of Blakeslee Degreasers or Metal Parts Washers with you and just how your production may be speeded and cleaning costs cut. An engineer will be pleased to call on you without obligation on your part.



G. S. BLAKESLEE & CO.

CICERO STATION

NEW YORK CHICAGO TORONTO

matter of pennies over that of standard bodies. The materials used are all non-critical.

EMULSION CLEANING

The Enthone Co., New Haven, Connecticut, have just issued a 4-page bulletin describing the company's emulsion cleaners. These cleaners are designed for rapid cleaning of all types of basis metals without attack and are recommended for cleaning of badly contaminated work. Four pages and an illustration are devoted to a description of the products and their use.

NEW SELECTRO-PLATER BOOKLET

W. Green Electric Company, Inc., 130 Cedar Street, New York is now offering a new 12 page booklet giving interesting details on their SELECTRO-PLATER. Interested platers may obtain free copies by writing direct to the manufacturer.

ELECTROPLATING PRODUCTION STEPPED UP WITH NEW PROCESS

In the large electroplating plant of the Chicago Plating Company in Chicago, plating of war products goes on continually around the clock. The faster production schedules are being met by the use of a new and radically different process of electroplating known as the Promat Process.

Mr. A. L. Pietrowicz, in charge of technical development of the Chicago Plating Co. states production has been more than doubled. The Promat Process he says "gives better anode characteristics and greater cathode efficiency. The results are self-evident,"—a finer grain deposit and brighter finish is readily obtained.

In the Chicago Plating plant, a new and unique use is made of alternating current. A motor driven generator supplies direct current to the Promat Power Unit which in turn produces an asymmetrical alternating current. This current is used as a power source with specially prepared high speed zinc plating baths. Both No. 90 and No. 99 Promat Processes are used here.

A free booklet describing the PROMAT PROCESS may be obtained by writing PROMAT DIVISION, POOR & CO., 851 S. Market St., Waukegan, Ill.

NEW EMULSION CLEANERS

Photograph of emulsion cleaner on immersion of work in cold water. Notice the rapid dispersion of the cleaner with absence of jelling

The Enthone Co., New Haven, Connecticut, has announced the development of two new emulsion cleaners. One material called "Enthone Emulsion Cleaner" is an emulsifiable solvent in the ready-to-use condition. The cleaner is designed for rapid cleaning of oil, grease and solid dirt without attack on any basis metal including zinc, aluminum, brass, lead, and steel. The use of the cleaner is stated to enable fast, complete cleaning of very oily or dirty work giving more adherent, brighter and less porous electrodeposits and more adherent organic finishes. A saving in alkali cleaner is also claimed. The work to be cleaned is swished about in the cleaner and is then rinsed off in running cold water, which emulsifies the cleaner with all of the dirt. A very short immersion in an alkaline cleaner following this prepares the work for finishing.

The cleaner is stated to be of high penetrating power, to have high emulsifiability, and rinses rapidly and completely. Its flash point is above 100° F., and it has no strong disagreeable odor.

The other emulsion cleaner is called "Enthone Emulsion Cleaner Concentrate," which is a base of strong emulsifiers that is mixed with from nine to fifteen volumes of solvent naphthas, and used in the same manner as the Emulsion Cleaner. The base enables the obtaining of emulsion cleaners at a somewhat lower cost for users of large amounts of emulsion cleaners.

CONTROL YOUR PLATING SOLUTIONS

KOCOUR TEST SETS

KOCOUR CO. • 4725 S. CHRISTIANA AVE. • CHICAGO

Tank Troubles and How to Thwart Them

Leaking joints, corrosion failures and inefficient flow conditions are stepping stones to the spot behind the 8-ball. These tank troubles are best prevented when the tanks are in the planning stage. Just remember that Storts-welded joints are guaranteed not to leak, that lead linings are readily available to inhibit corrosion at low cost, and that Storts experience in the general design of tanks and fittings for plating service adds up to twenty years of outstanding success in delivering complete customer satisfaction.

STORTS WELDING COMPANY

42 Stone Street Meriden, Conn.

Manufacturers of Welded Fabrications to Specification

BRANCH NEWS

Business and Social News • Educational Activities

BUFFALO BRANCH

The regular meeting was held Friday, October 8th, at the Hotel Statler, President Logan presiding. The meeting was called to order at 8:15, followed by the reading of the minutes of the September meeting. These were voted approved as read. The subject of changing our meeting night was discussed and voted down by approval of a motion by Dr. Wernlund that we continue to meet on the second Friday of each month.

A letter from the Newark Branch regarding the Smith-Wagner Testimonial Dinner was read and discussed. Dave Clarin of Oakite Products Inc., our guest speaker, volunteered to represent the Buffalo Branch in case none of our members were able to attend.

Applications for membership were received from Ralph Gipp and Richard Wheeler. New members and guests were welcomed by President Logan and given a rising welcome by the members.

After hearing and approving the treasurer's report, the members were entertained for over an hour by Dave Clarin who maintained his amateur standing as a magician by failing to saw a woman in half. After witnessing his demonstration in the art of legerdemain there were none of us who would be so bold as to doubt his ability to accomplish such a feat.

One woman watched him make a bowl of rice and a bowl of milk appear out of nowhere and then remarked that he would be quite handy to have around the house. He is handy to have around, whether the problem is cleaning or entertainment. We could stand a lot more speakers like Dave, as evidenced by the applause accorded him.

Following this very entertaining demonstration we had the privilege of seeing the 1943 Convention Moving Pictures.

The meeting was adjourned at 11:15 P. M.

J. C. MAYS, *Secretary*

JACKSON BRANCH

The regular meeting of the Jackson Branch of the American Electroplaters Society was held September 14th. Thirty members and friends were present.

The Society voted to hold every other meeting in Lansing, Michigan, to strengthen the attendance to the Society in both cities.

Dr. R. Saltonstall of the Udylite Corporation, Detroit, was the guest speaker of the evening. His subject was zinc plating and cronak finishing of steel shell cases.

The next regular meeting will be held in Lansing, Michigan, at the Porter Hotel.

E. J. NORDMAN, *Secretary*

The second meeting of the Jackson Branch of American Electroplaters Society, was held at Hotel Hayes.

The nomination and election of officers was first order of business.

The elected officers are as follows:

Mr. Atkin, Sparks-Withington Co., President.

Mr. McKeon, Reo Motors, Vice-President.

Mr. Nordman, Sparks-Withington Co., Secretary & Treasurer.

Mr. Webb, Detrex, Librarian.

Board of Managers elected are:

Mr. Michner, Michner Plating Company; Mr. Straight, Oldsmobile; Mr. Bennet, Oldsmobile.

Mr. Caldwell of Grand Rapids branch discussed importance of active membership in society.

It was decided that a report be sent to National Secretary Candee on activity of our new branch including names of officers elected and names of Board of Managers.

It was agreed that meetings will be held on the second Tuesday of each month; also, announcements of next meetings are to be mailed to all prospective members.

E. J. NORDMAN, *Secretary*

BOSTON BRANCH

Boston Branch met Thursday, Oct. 7th at the Statler Hotel, Boston, with Pres. Swift in the chair.

Minutes of the previous meeting read and approved.

Communications read and placed on file, bills read ordered paid.

One application was read and turned over to the board of managers for approval: Charles F. Mahoney, 4 Washington Ave., Winthrop, Mass., Associate.

A report of the Buffalo convention was made by George P. Swift and was approved by the Branch.

The Board of Managers audited the books of the Sec'y.-Treas. and found to be O.K.

We had with us Al Baker, just back from Alaska and he told of the hardships the boys are going through up there. Good luck, Al. We also had two old friends with us, Frank Clark and Bill Chace, come again.

Bob Magnuson, our librarian, introduced the guest speaker of the evening, Mr. Fred Hampson, of the Plating Processes Corp. of Holyoke, Massachusetts, who gave a very interesting and demonstrative talk on "Electronic Tank Controllers." These controllers can rightfully be called "The Automatic Tank Watchman" for they keep the solution level constant, temperature even, has a high solution level warning and cutoff, and other features besides a tank leakage detector. In other words, the instrument we have all thought a lot of, but never did anything about it, has now been developed. Mr. Hampson answered numerous questions to the satisfaction of all.

A. W. GARRETT, *Sec'y.-Treas.*

CLEVELAND BRANCH

Minutes of the meeting of the Cleveland Branch of the American Electroplaters' Society held in the Cleveland Hotel on Saturday evening, October 2, 1943.

The meeting was called to order at 8:30 P. M. by our President, Mr. William E. O'Berg.

The Minutes of the September 11 meeting were read and approved as was also the treasurer's report.

The applications of: Mr. Thomas R. Gill, of Cleveland, Ohio, as Associate; Mr. Ralph G. Kennedy, Jr., of Cleveland, Ohio, as Associate, were read and referred to the Board of Managers.

The following candidates whose names were read at the August 7 meeting and which were published in the September issue of THE MONTHLY REVIEW were elected:

Mr. Richard T. Stafford of Wickliffe, Ohio, as Active

Mr. Royal T. Strickland of E. Cleveland, Ohio, as Associate

Mr. John T. McQillin of Lakewood, Ohio, as Associate

Mr. George E. Gamble of Cleveland, Ohio, as Associate

Our Librarian, Mr. John Honnecker, gave us a very interesting talk on the Cost Of Plating which produced a number of questions.

There being no further business, the meeting adjourned at 10:30 P. M.

GEORGE B. SVENSON, *Sec'y. & Treas.*

LANCASTER BRANCH

The Lancaster Branch of the A. E. S. met October 8, at 8 o'clock. The secretary read the minutes of the previous meeting. The chairman of the program committee announced that our Novem-

ber meeting would be held in York and that two of our own members, Mr. Norman Gebert and Mr. Rowland Hoenstine, would give a talk. The subject of their talk is to be a surprise but one that will prove interesting to every one.

The president then introduced Mr. Frank MacIntyre of the DuPont Co. who talked to us and gave a practical demonstration of the Hull Cell.

Mr. MacIntyre explained the construction and working principles of the cell and then by using solutions brought by the members gave an interesting practical demonstration.

Mr. MacIntyre showed how the cell could be used to make checks on a bath and make additions to the bath and see their affect without running a large bath. Numerous questions were asked by the members which Mr. MacIntyre answered. The meeting closed at 11 o'clock.

WILLIAM D. FORDNEY, *Secretary*

CHICAGO BRANCH

The regular monthly meeting of Chicago branch was held Friday, Oct. 8, 1943, at the Atlantic Hotel.

President R. J. Hazucha presiding and all officers present.

I am very sorry to report the sudden death of Mr. Ed. Lanz, who was a very active member. Chicago Branch Officers and members extend their deepest sympathy to Mrs. Lanz and family.

A letter from Newark branch inviting Chicago branch members to the Smith-Wagner testimonial dinner, Oct. 23, read and placed on file.

A letter from the Electrochemical society inviting our members to attend their educational meeting Oct. 13-16 in New York read and placed on file.

Mr. Hazucha reporting for the Banquet Committee stated that we will hold our 32nd annual educational session and banquet on Sat., Jan. 22nd, 1944, at the Palmer House, and we expect this to be one of the best annuals ever held by Chicago Branch.

Mr. Krentel reporting for the educational committee expects to have three very well-known speakers for our 32nd annual educational session so please remember the date Sat., Jan. 22nd, 1944.

Chicago branch extends their best wishes to the following members for a speedy return to health: Mr. O. E. Servis, Mr. G. Spencer, Mr. H. A. Gilbertson, Mr. J. Manderscheid and Mr. F. Novotny.

An important message was sent to all members on Sept. 27, 1943 regarding a tuition free course in electro-plating at the Lewis Institute beginning Oct. 4th, one evening each week and the course will run for fiteen weeks; this course is sponsored by the U. S. Office of Education. It is hoped that those interested will register at once. Mr. C. Kocour deserves the credit for bringing this course to the attention of the branch.

Mr. Krentel introduced the guest speaker of the evening, Mr. L. G. Tubbs, chief chemist of the Mutual Chemical Co., who made a very interesting and instructive talk on the "Chromic Acid Anodizing Process for Surface Protection of Aluminum." Mr. Tubbs answered many questions regarding the process and cleared up many points regarding the control of this process.

How can tin be stripped from cadmium plate and how can you tell when all the cadmium has been removed?

Ans. Use reverse current in the alkali bath, when the tin is all off the cadmium will turn a yellowish green color.

What pH should a cadmium solution be?

Ans. From 12 to 13.3 or over.

What harm will be caused by iron in a cyanide copper solution?

Ans. It may interfere with the analysis, but it was not thought that there would be enough present to cause any harm to the plating.

What is the best method for control of the chromic acid anodizing solution the pH or the current density control?

Ans. The pH control is the best method.

There were 70 in attendance and the meeting adjourned at 10:40 P. M.

J. W. HANLON, *Sec'y.-Treas.*

NEWARK BRANCH

The regular meeting of Newark Branch A. E. S. was held at the Robert

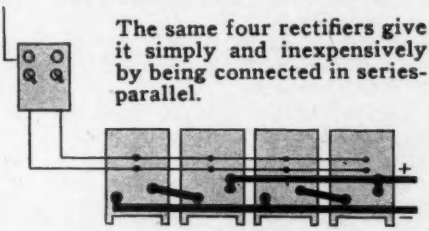
IF YOU NEED D-c POWER . . .

For TANK PLATING AT 2000 AMPS, 1-6 VOLTS

You can get it quickly and easily by connecting four G-E Copper Oxide Rectifiers in parallel. The single regulator gives full control over all four.

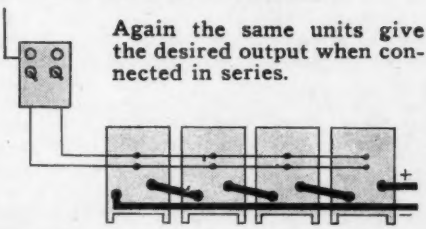
For BARREL PLATING AT 1000 AMPS, 2-12 VOLTS

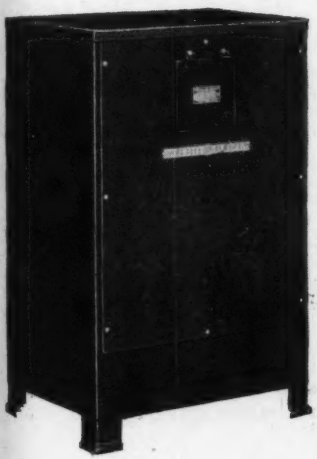
The same four rectifiers give it simply and inexpensively by being connected in series-parallel.



For ANODIZING AT 500 AMPS, 4-24 VOLTS

Again the same units give the desired output when connected in series.





OR FOR a great variety of other jobs, G-E rectifiers can be used with maximum efficiency. Output can always be increased or decreased. Further, they involve virtually no maintenance costs. Why not investigate the potential advantages of G-E Copper Oxide Rectifiers in your electroplating? Just write to Section A1134-106, Appliance and Merchandise Dept., General Electric Company, Bridgeport, Conn.

GENERAL ELECTRIC

Treat Hotel on Friday, September 17th, 1943. President William Bruhns called the meeting to order at 8:45 P. M. All other officers were present.

The minutes of the previous meeting were read and approved.

An application to Associate Membership of Fred W. Manthy of the Wright Aeronautical Corporation, Paterson, New Jersey, was voted to take the regular course. Clifford Struyk was elected to Associate Membership.

Newark Branch was honored with the presence of the Supreme Officers, Charles Conley, Maurice Caldwell, Clarence C. Helmle, Walter L. Pinner and Ellsworth T. Candee. President Bruhns called upon each honored guest for a few words. This was the first time in many years that all of the Supreme Officers were present at a regular branch meeting.

Mr. Paul Oldam gave his report on the Smith-Wagner Testimonial Dinner.

Mr. Hanson, of the Plating Process Corporation, gave a demonstration and very interesting discussion on Electronic Tank Controls. He was asked many questions after his discussion and he distributed pamphlets containing full details and explanation of the Electronics Tank Controls. Mr. Hanson was given a rising vote of thanks by the 66 members who attended this meeting.

The librarian conducted a Question Box which proved very interesting.

The meeting was adjourned at 11:00 P. M. after which refreshments were served.

GEORGE WAGNER, *Secretary*

DETROIT BRANCH

Detroit Branch held the regular monthly meeting at the Hotel Statler on October 1st, 1943. President J. E. Fritts presided. Several applications were read and the following were elected to membership:

J. L. Reed, Associate; C. T. Wells, Associate; F. J. DeWitt, Jr., Associate; J. L. McGee, Active; R. J. Kubis, Active; E. L. Morrison, Active; Dr. J. E. Stareck transferred from Waterbury Branch.

A moving picture "This Plastic Age" was a very colorful and instructive filming of the uses and manufacturing of some plastics.

Dr. R. A. Shaefer from The Cleveland Graphite Bronze Co., presented his paper on Rapid Silver Plating and explained how silver is being plated on bearings at 100 amps/sq. ft. with suitable movement of the electrolyte.

Detroit will hold their annual meeting including dinner, entertainment, and dancing at the Statler Hotel on December 4th. Details will be announced as soon as possible.

F. L. CLIFTON, *Sec'y.-Treas.*

PROVIDENCE-ATTLEBORO BRANCH

The first meeting of the season was held on Monday evening, September 20th, Mr. J. T. Henry, Jr., presiding.

A roll call of officers indicated that all were present.

The meeting at once developed into the most spirited business session in the history of the Branch, which was probably due to the opening remarks of our president, who, in an excellent manner, outlined not too briefly the aims of the Branch for the coming year and what would be expected of the officers and the members, if we are to have the organization that has been planned.

Even though this particular meeting was of a strictly business nature, the attendance and interest was so great that it became apparent that the usual quarters of the Branch would no longer be adequate, and it was then decided to conduct all future meetings in the special parlors offered by the Crown Hotel, Providence, Rhode Island.

The new quarters are spacious and splendidly arranged for the type and character of the sessions the Branch proposes to conduct henceforth.

Al Marshall, our librarian, is striving to obtain speakers with subjects that are likely to please, and in this he is meeting with splendid cooperation from all sources.

The Membership Committee, headed by George Desormeau, report great progress and an appreciable increase in membership is assured.

After some further remarks by President Henry, mostly of an economic na-

ture covering the present financial status of the Branch, the meeting closed at a very late hour.

CHAS. C. CHACE, *Secretary*

TOLEDO BRANCH

A regular meeting of the Toledo branch of the A. E. S. was held Thursday evening, Sept. 2, 1943, at the Hildrest Hotel, with 15 members and two guests present.

The meeting was opened at 8:30 P. M. and was presided over by the Vice President, Mr. Ward Hunlock.

Minutes of the previous meeting were approved as read.

Mr. Hunlock gave a 5 minute pep talk on the membership drive. The application of Mr. Bernard Phillips for an associate membership in the Toledo Branch was accepted.

The speaker of the evening was Dr. Saltonstall of the Udylite Corp., Detroit, Mich., who gave a very good talk on zinc plating of shell cases. His detailed information on the subject was very interesting. A vote of thanks was given the speaker. The meeting adjourned at ten o'clock.

GASTON BERGEMAN, *Secretary*

MONTREAL BRANCH

The Montreal Branch A. E. S. held their monthly meeting at the Mount Royal Hotel on Monday, Aug. 2nd., 1943.

Mr. J. H. Feeley brought up the subject of Mr. Glasstone's book and it was moved that the Montreal branch order eighteen copies.

In the absence of the Librarian the meeting was made an open forum. The highlight of the discussion that followed was Mr. Mitchell's question "What would cause polished steel to rust in a reverse electrolytic cleaner solution?" It was suggested that this might not be rust but an iron sulfide caused by the introduction of sulfur from a sulfur base oil.

Meeting of September was deferred from Labor Day to the following Monday, September 13th. Meeting was adjourned at 10:30 P. M. by the chairman, Mr. Reisenburg.

The Montreal Branch A. E. S. held their monthly meeting at the Mount Royal Hotel on Monday, September 13th. The minutes of the previous meeting were read and adopted as read.

The death of one of our members, Mr. Charles Vandemark, on May 16, 1943, was officially noticed in the minutes of the Montreal Branch.

It was regularly moved and seconded that Mr. J. C. Stevens be suspended for non-payment of dues.

The Board of Managers report progress in the affairs of the Branch.

The Chairman of the Board of Membership reported three new members applying for membership in the Montreal Branch, these were submitted to the Monthly Review for publication.

The meeting was now turned over to our librarian for the question period. The first was "How much chrome would be necessary to retard rust on a bearing race?" It was Mr. Marsh's opinion that chrome would not be suitable for retarding rust but as a bearing surface or for cleanliness of operation it would do. As to how thick the chrome must be he was of the opinion that not less than .005 chrome and this must be polished after plating.

Why does reworked aircraft parts blister when copper plated .0005?

Ans. This was thought to be due to carbonization of the steel due to the sulfur in the oil used while the parts are in service; it was suggested that these parts be cleaned anodically and pickled in a 50% HCl solution.

A drawn steel cup to be cadmium plated .0005 inside and out. These cups have a rubber insert and bushing.

Ans. This cannot be done without an inside anode. This is because the current will follow the lines of least resistance. By decreasing the ratio between the high and the low spots a more uniform deposit can be obtained.

A vote of thanks to Mr. Marsh for his very instructive answers to the questions put to him was moved by Mr. Reisenburg who went on to welcome the first member of the fairer sex to grace the gathering of the progressive electroplaters of Montreal, and to extend to any other ladies engaged in the art of electrodeposition a welcome to membership in the local branch. This

FOR SALE Available for Immediate Shipment

3—5000/2500 AMPERE, 6/12 VOLT, **A. P. MUNNING "OPTIMUS"** Motor Generator Sets. Full Panel-Board Arrangement. Excellent Condition.
2—5000/2500 AMPERE, 6/12 VOLT, **EAGER ELECTRIC CO.** Motor Generator Sets. Excellent Condition.
1—5000 AMPERE, 6 VOLT, **JANTZ & LEIST** Motor Generator Set. Full Panel-Board Arrangement. Excellent Condition.
1—2000 AMPERE, 2-6 VOLT, **JANTZ & LEIST** Motor Generator Set. Excellent Condition.
1—1500/750 AMPERE, 6/12 VOLT, **CONNECTICUT DYNAMO AND MOTOR CO.** Motor Generator Set. Excellent Condition.
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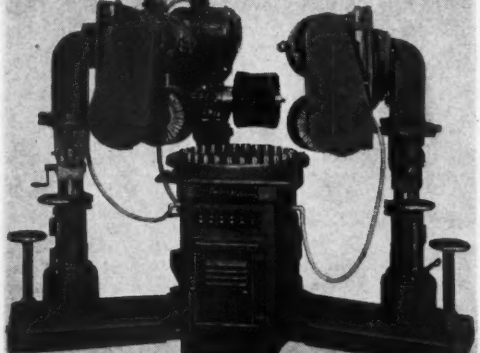

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was very ably seconded by Mr. J. H. Feeley.

The meeting was adjourned by the Chairman after a very busy evening at 11:00 P. M.

WM. G. FINLAY, *Secretary*

NEWARK BRANCH

The regular meeting of the Newark Branch A. E. S. was held on Friday, August 20th, 1943, at the Hotel Robert Treat, Newark, New Jersey. The meeting was called to order at 8:30 P. M. with President William Bruhns presiding. All other officers were present.

The minutes of the previous meeting were read and approved. A bill for printing letter-heads and envelopes in the amount of $15.50 was voted to be paid.

An application of Frank Morgan Hines, Jr., of the Western Electric Company to Associate Membership was voted to take the regular course.

Our Librarian, Edward Washburn, announced that he had arranged for a speaker for this meeting but due to some unfortunate circumstance the speaker was unable to appear. Mr. Washburn called upon Mr. George Hogaboom, who happened to be present and who is always an excellent pinch-hitter. George gave a very interesting discussion on his experience and his connections with the War Production Board in Washington, D. C. George was given a rising vote of thanks for his discussion. A Question Box was next presented in which some of the plating problems of various members were ironed out.

The meeting was adjourned at 11:00 P. M.

GEORGE WAGNER, *Secretary*

GRAND RAPIDS BRANCH

Below are the minutes of the last Grand Rapids Branch meeting.

The opening session of the 1943-1944 season of the American Electroplaters Society, Grand Rapids Branch, was held September 10th and welcomed back again at the Rowe Hotel.

The meeting started promptly at eight o'clock by the showing of pictures and slides on various subjects. A program of general interest was arranged.

After the slides a short business session was conducted by our President, Homer Morton. Reports from Committees were given. One new member application was received and voted upon:

Mr. Benjamin S. Flug,
123 Dickinson, S.E.,
Grand Rapids, Michigan.

Mr. Bert F. Lewis, Technical Director of Northwest Chemical Company, was then introduced and conducted a Round-Table discussion on all subjects of plating, cleaning, painting, bonderizing, anodizing. Many finishing inquiries were given and their answers discussed from all angles. This manner of conducting and solving technical questions was very well received by all present and a great deal of interest shown. This first session since May was well attended.

The Rowe Hotel was prepared to serve refreshments after which the meeting was adjourned.

C. E. ABEL, *Sec'y.-Treas.*

BUFFALO BRANCH

After a three months' recess, the members of the Buffalo Branch resumed their regular monthly meetings by assembling at the Hotel Statler, Friday night, September 10th. The meeting was called to order by our new president, Charles Logan, at 8:15 P. M. The minutes of the May meeting and the treasurer's report were read and approved. The financial report on the 1943 Convention was read and unanimously accepted.

Six new members: Edwin Bowerman, Jr., of Sylvania Products Corporation; Edward Dudkowski of Curtiss Aeroplane Corporation; Douglas Foster of Magnus Chemicals Company; Irwin Gage of Mitchell-Bradford Chemical Company, Charles Manganello, Logan Platers, Incorporated; Donald Hepburn of Bell Aircraft Corporation, were greeted by the President and given a rising vote of welcome by all present. A hearty greeting was also accorded our guest, Dick Wheeler of The Carborundum Company.

The subject of our annual Fall picnic was discussed: a majority of the members showing their approval. The following committees were appointed: Grounds—Don Rice, Kenny Mau and

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John Kilroy; Food and Games—Joe Ruff, Jim Vitalie and Irwin Gage. These committees were to meet at the home of Charles Logan, Wednesday night and make their arrangements for the picnic. It was decided to invite the Rochester Branch to play a ballgame with the Buffalo Branch at the picnic.

The Cleveland, Toronto, Syracuse and Detroit Branches were also to be invited.

The question of changing our regular meeting night to Saturday, for the duration, was discussed. The President directed the Secretary to send out cards concerning the proposed change; action to be taken at our next meeting.

A motion was made by Don Rice, seconded by Jim Vitalie and carried that the Buffalo Branch have a Question Box, for discussion at our regular meetings.

In the absence of our scheduled guest speaker, Dr. Wernlund took the floor to lead a discussion on plating. In his opening remarks, he explained that the absence of our librarian, Bill Fotheringham, was due to sickness and suggested that the members send cards of sympathy. He also extended thanks to the Convention Committee Members for their excellent cooperation in making the Convention a success. He also announced that our next meeting October 8th would be Dave Claren night. The ladies are to be invited.

Mr. Bowerman asked Dr. Wernlund to compare sulphamate baths with conventional plating solutions. Lead being the most common, of the sulphamate baths, this was taken as an example. The ingredients of the lead sulphamate baths are lead sulphamate $Pb(NH_2SO_3)_2$ sulphamic acid NH_2HSO_3 and ammonium sulphamate $(NH_4)_2SO_2$. The bath is operated at a pH of 3 and for best results a good addition agent is required. For light coatings a current of 28 amps per sq. ft. can be used, giving a coating of .004" per hour.

Kenneth Mau of Keystone Chromium Corporation supplied the information that they use lead, plated from a sulphamate bath, to protect steel from sulphuric acid. The lead is put on over a flash of copper which furnishes bet-

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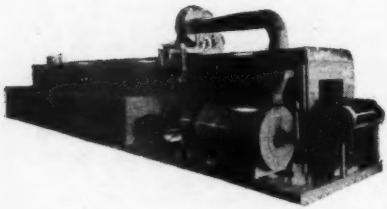

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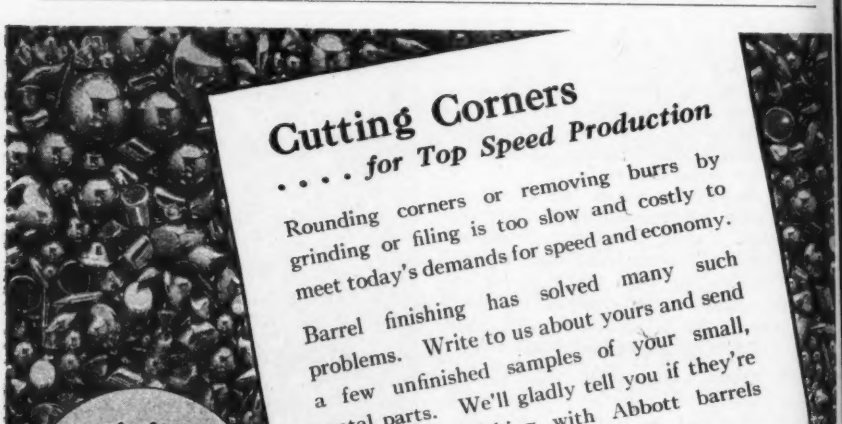
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ter adhesion. Coatings of .005" and .008" are applied at low current densities in order to insure smooth deposits. Some other members told how they use lead plating as a base over which sheet lead is burned for chrome plating anodes.

After the members had thanked Dr. Wernlund for an excellent discussion, the meeting was adjourned at 11:00 P. M.

J. C. MAYS, *Secretary*

LOS ANGELES BRANCH

The Los Angeles Branch held its first meeting after summer vacation Sept. 13th at the Rosslyn Hotel, with a record breaking attendance of 53, of which 21 were prospective members. A very good ham dinner was enjoyed by all.

President E. R. Holman opened the meeting by announcing that speakers in the future will be given the first part of the meeting so that visitors will not have to sit through business session.

The following visitors were introduced by Sgt. at Arms, Stanley Rynkof. Fred D. Moore, Renu Plating, 1531 E. 32nd St., Los Angeles. Don Clark, Bendix Aviation Corp., 6326 Farmdale Ave., L. A. E. Wilds, Adel Precision, Arcadia, Calif. John F. Beall, Harshaw Chemical Co., 1452 Cooledge, Pasadena, Calif. C. L. Wilson, Bendix Aviation, Sierra Villa Dr., Eagle Rock, Calif. A. T. Cram, Bendix Aviation, 8029 Coldwater Canyon, Los Angeles, Calif. H. Brellinger, Adel Precision, 421 S. Pico, Los Angeles, Calif. S. F. Hill, Hill Electric, 1565 Chicksaw Ave., Eagle Rock. E. H. Hoyt, Pacific Enameling and Plating, 1021 Tyler St., Glendale, Calif. C. H. Wells, North American Aviation, 124 W. Sycamore. George Coubrough, North American, 405 W. 64th St., Inglewood, Calif. R. J. Lawson, Air Research Mfg., 3941 Lyceum, Venice, Calif. R. B. Strathoran, North American, 4093 8th Ave., Los Angeles, Calif. A. C. Shumate, U. S. N. Inspector, 1165 N. Jenese, Hollywood, Calif. C. Stickaley, Turco Products, 715 N. Wilned Ave., San Gabriel, Calif. M. L. Rimmer, Turco Products, 403 W. 82nd St., Los Angeles. E. R. Miller, Turco Products, 414 14th

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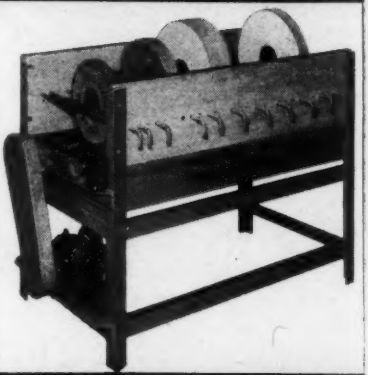

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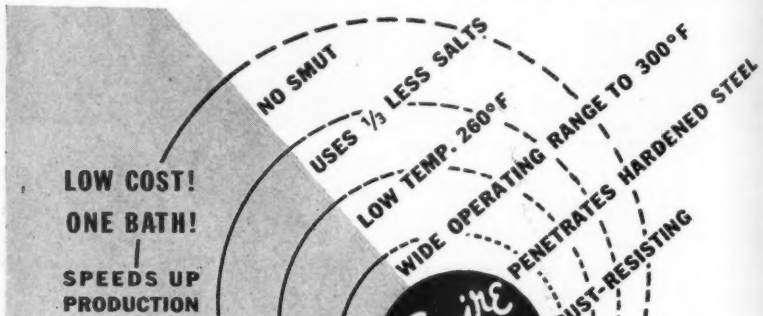

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St., Santa Monica, Calif. A. L. Speser, Collins Eng., 701 Park Ave., S. Pasadena, Calif. Ralph Wheeler, Turco Products, G. R. Makepeace, Menasco Mfg. Co., 414 Glenoak Dr., Pasadena.

Mr. Holman turned the meeting over to Mr. Earl Coffin, Librarian, who introduced the following speakers: Carl Hurdler, Jr., Process Engineer, Turco Products, Inc., who gave a talk entitled, accelerated corrosion test for electroplated coatings. Mr. G. R. Makepeace, chemist, Metallurgical laboratory, Menasco Mfg., who gave a talk entitled, the effect of after treatment on corrosion resistance of zinc plating. Both papers were very interesting and educational and were promised for publication in the Review.

Recess was called for five minutes.

Visitors were excused.

President Holman called the business meeting to order. Mr. Dean Williams, John F. Beall, and Sydney F. Hill were elected to membership.

Minutes and financial reports were read and approved.

Under communication Mr. E. Lamerouex read two letters regarding information pertaining to plating without generators or rectifiers which has not been developed for commercial use.

Mr. Frank Shaw, Jr., was reported to be in the Armed forces.

Mr. Lamoureoux also read a letter giving us the rules for the trophy award for the best papers presented to the Branch for the coming year, also announcing his Board of Judges: Earl Coffin, Don Bedwell, M. D. Rynkofs and C. E. Thornton.

Mr. Eldred was to write a letter explaining the original offer and send a copy to the Review.

Stanley Rynkof reported on the picnic. Every one had a very good time.

Motion was made and carried that the Branch buy a $500.00 bond. Also that the supreme president be notified of this so that he might suggest to other branches to do the same.

Applications for membership were: Charles H. Wells, North American Aviation; A. L. Speser, Collins Eng. Co.; C. G. Spence, Leo Brame, Thompson Products; Geo. Coubrough, North American Aviation. which were turned over to Board of Managers.

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Meeting adjourned 10:45 P. M.
C. C. McLAREN, *Sec.-Treas.*

Question Box

After steel is copper plated and the teeth thereon stopped off so that they can be case hardened, how can the steel be stripped of the copper so that the steel is not affected?

Ans. Chromic acid or liver of sulphur.

What effect if any has the staining of zinc plating on its corrosion resistance?.

Ans. None, but dicromate increases corrosion resistance.

How can I get a nice clean zinc plate on cast iron plumbing? The iron has a fire scale and must be pickled.

Ans. Suggest sandblasting instead of pickling.

What acids are used in conjunction with phosphoric acid for etching cold rolled steel and what are the proportions?

Ans. 85% phos will do. Any mineral acid will etch followed by phosphoric base.

Our zinc is plating dull. What can be used for a brightener or can you recommend something else that will give satisfactory results?

Ans. Purify and clean solution so as to plate pure zinc. It will be bright if additional brightness is desired use patent brightener.

BRIDGEPORT BRANCH

The regular monthly meeting of the Bridgeport Branch of the American Electroplaters' Society was held September 3, 1943, at the Chamber of Commerce Rooms, Stratfield Hotel. President A. R. McNeil opened the meeting with twenty-three members present.

The roll call of officers was read, and Sargent-at-Arms Lawrence Griffin was reported absent. The minutes of the previous meeting were read and accepted.

Reports of Special Committees:

A. R. McNeil, Chairman of the Outing Committee, announced that the final preparations for the outing were completed, and was to be held Sunday, September 12, 1943, at Trumbull, Conn., at the estate of Wm. A. Ehrencrona.

The Exhibit Committee to the Convention reported a fine display at the convention and that the Bridgeport

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Branch was awarded the First Prize for the Branch Exhibits.

Dr. Walter R. Meyer was awarded the First Prize in the Technical Group.

Axel Boggild was awarded the Second Prize on Processes.

A. R. McNeil was awarded the First Prize on pictures of the past conventions.

J. G. Sterling reported that a check for $41.42 was received from Kenneth Bellinger, treasurer of the Regional Meeting Committee.

Reports of Standing Committees:

F. B. Gotthardt, Chairman of the Sick Committee reported no sickness during the period. Flowers were sent to the family of J. G. Sterling, whose father has passed away. A card was received by the Branch thanking the members for their kind expression of sympathy.

Hubert Goldman, Chairman of the Membership Committee, reported six applications to the Branch with more coming in at the future meetings.

John E. Charleson, our Librarian and Technical Session Chairman, reports a round table discussion for this meeting.

A letter from Walter T. Lynch, President of the New Haven Branch asking for a mailing list of the Bridgeport Branch. The request was taken care of by the secretary.

Applications for Membership: George H. Goddu—City Plating Works, Bridgeport, Conn., Associate Member; Louis W. Raymond — City Plating Works, Bridgeport, Conn., Active Member; Roger E. Reath — City Plating Works, Bridgeport, Conn., Associate Member; Reno S. Smith — Singer Mfg. Co., Bridgeport, Conn., Associate Member; Melvin G. Crandell—Parker Rust Proof Co., 14 Iroquois Road, Ossining, N. Y., Associate Member; S. Allen Heenan — General Elec. Co., Bridgeport Conn., Associate Member.

Reports of the Convention held at Buffalo in June, 1943, were given by C. C. Helmle, J. E. Charleson and J. G. Sterling, who as delegates, attended the convention. The amendment to the constitution sponsored by the Bridgeport Branch was defeated, but not without the fact that more consideration should be given to this subject. It is also with pride that the Bridgeport Branch has as a member in its midst who is now Su-

preme Second Vice President, Clarence C. Helmle. With due respect to the Supreme Society, we do know that "Chick" can do a darn good job in any office to which he is elected.

Steve Sabo desires to be reinstated as an active member. The Branch has complied with this request.

Bills against the Branch were ordered to be paid.

No comments at this time.

The treasurer's report was read and accepted.

The meeting was turned over to our Librarian, J. E. Charleson, who conducted a round table discussion on the various problems of the finishing of metals.

Drills became undersized within three days in drilling operations. What can be done to have these last longer?

Ans. Chrome plate all new drills, which will give them durability to produce more parts. Investigation has proved that they last from five to ten times longer.

We also have difficulty in reamers becoming undersized. Would chrome plating them before using make them last longer?

Ans. Yes, same as in the case of the drills used for the drilling operations.

What type of chrome bath would you use?

Ans. 70 to 1 ratio in the 53 oz. chromium solution is favorable to the 100 to 1 ratio using the 33 oz. bath.

Zinc plate over steel blisters when under heat treatment?

Ans. If cleaned properly, blistering will not occur. Use anodic cleaning on all steel work.

We have trouble in flaking of baked enamel parts on zinc plated steel parts.

Ans. Treat zinc plated surface with phosphate or other passivating treatment.

The meeting adjourned at 10:45 P. M.

An outing was held by the Bridgeport Branch of the American Electroplaters' Society at William A. Ehrencrona's estate on Sunday, Sept. 12, 1943, in Trumbull, Conn. The weather was fine with plenty of the good sun and refreshments were excellent under the fine supervision of "Bill Ehrencrona and the Mrs." including the expert handling

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BRIDGEPORT, CONN.

of foods by Steve Suhanosky and his helper. We had fun with "roulette" using fake printed money with experts doing the job in the person of C. C. Helmle and A. R. McNeil. Doc Meyer was pleased with the sunshine and surroundings, and Geo. Morrow was good with his narrations. Jack Barry of the Fred Gumm Chemical Co. was also there, and was very pleased with the prizes donated. Other prizes were also given and Chick and Art had quite a time in handling this affair. Card games were plentiful and everyone enjoyed a good time.

J. G. STERLING, *Sec.-Treas.*

CINCINNATI BRANCH

The first meeting after the summer adjournment was held at the Hotel Gibson, September 23, 1943. The meeting was opened with the new president, Mr. Wm. B. Stoddard, Jr., and all the officers present

The minutes of the previous meeting were approved as read.

Questions were raised and a discussion took place on the new Herman Schneider Foundation. Motion was made that the next meeting should be on this subject alone as there were many details to be carried out.

Harry Misner, our past president, was appointed Chairman of the Membership Committee. "Go getting, Harry."

Program Committee was appointed with Eric Wischhusen, new librarian, as Chairman. William Ehlen, past librarian, and the Secretary were also appointed to the Committee.

Books were audited and approved. All bills were ordered paid. A financial report will be given at the next meeting.

The communication received was from the Dayton Branch about their regional meeting that will be held on November 6, 1943, at the Miami Hotel, Dayton, O. The members approved enthusiastically the support of this affair, of which many showed their desire to be present.

Mr. Wm. Stoddard took over the remaining part of the evening with an interesting talk on Iron Plating. He was given a rising vote of thanks and the meeting was then adjourned.

ELLIOTT W. HORNING, *Secy.-Treas.*

Smith-Wagner Testimonial Dinner

Approximately 350 friends of Horace Smith and George Wagner attended a Testimonial Dinner, Saturday, October 23rd, at the Hotel Robert Treat. This dinner followed a technical session which was attended by more than 100 men. As usual the whole affair from the technical session to the banquet, entertainment and orchestra, was carried off in fine style under the chairmanship of Paul A. Oldam.

Frank Mesle acted as Toastmaster and introduced several people from a distance who spoke a few words in appreciation of the work done by George and Horace. Among those who were called on were George Gehling, John Feeley, George Hogaboom, Paul Oldam, and Ellsworth Candee.

Each of the Guests of Honor were presented with an easy chair and a smoking stand, and both expressed appreciation for the honor given to them and to their many friends. Mrs. Wagner and Mrs. Smith were both introduced from the head table. An excellent entertainment followed the presentation of the gifts and which in turn was followed by dancing until 2:00 A.M.

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BOOK REVIEWS

By

DR. GEORGE DUBPERNELL, *United Chromium, Inc.*

Electroplating and Anodizing. J. Rosslyn, 224 pages. Chemical Publishing Company, Incorporated, Brooklyn, New York. 1941. Price $2.50.

This is a reprint of a British book and as such is not as useful to American platers as to those in England. It is Volume 12 in the "Electrical Engineer" Series of books published by a British magazine of that name, and very possibly the author is an electrical engineer with some familiarity with electroplating. This would explain certain gaps and irregularities in the text. In general, the information given regarding the different plating processes and methods of analysis of solutions appears insufficient to enable one to make up or analyze baths satisfactorily by following the authors' instructions.

The book is extensively illustrated with 89 figures, in view of its relatively low price. The first chapter on "General Principles" begins with a rather good, brief review of the history of electroplating, and goes on with discussions of the use of rectifiers, cleaning, theory of electroplating, electrical connections, resistance boards and instruments, tap changing, and earthing (grounding). The second chapter covers chromium, cadmium and zinc plating. An unusual feature is a section on "Coloured Chromium Plating" in which the author mistakenly describes the color plating process with copper oxide, as a variation of chromium plating with organic additions. This chapter also includes some data on nickel plating and lead plating.

Chapter III relates to Electroplating in Printing, and discusses Electrotyping, Facing Plates With Nickel and Chromium, Preparation of Lead Moulds, The Plating Solution, Etching Half-tone Blocks, Plating Rotogravure Cylinders, and Chromium-Facing Plates and Cylinders. Chapter IV is on the Electroplating of Hardware and describes copper and brass plating, and colored finishes for these metals. Silver and Gold plating are discussed in Chapter V, which also includes some comments on Rhodium, Palladium and Platinum Plating. Chapter VI on

"Industrial Electroplating" is the longest in the book and covers many subjects. There is data on preparing large articles, electrolytic pickling, plating die castings, copper for case hardening, chromium plating tools, and for protection, polishing and buffing, plating bicycle spokes and rims, and auto radiators, bright nickel and cadmium, automatic and semi-automatic plating, barrel plating and drying out.

The last chapter describes the anodizing of aluminum and plating with aluminum. Eight pages are devoted to a detailed description of the aluminum plating process developed in America by Blue and Mathers, even though this is not used commercially. While this does not seem to be a dependable textbook and insufficient details are given on most processes, it has some unusual features of arrangement and content which may make it of some interest to certain workers.

THE FUNDAMENTALS OF ELECTROCHEMISTRY AND ELECTRODEPOSITION

By SAMUEL GLASSTONE

Published by The American Electroplaters' Society
545 Fifth Avenue, New York 17, N. Y., 1943. Price $2.00

A. E. S. BOOK DEPARTMENT

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BRANCH	May 1943	Change in Membership	Percent Change
HARTFORD	72	+26	+36.1
ST. LOUIS	83	+26	+31.3
BUFFALO	63	+14	+22.2
INDIANAPOLIS	60	+11½	+19.1
CINCINNATI	55	+ 9½	+17.2
SAN FRANCISCO	34	+ 5	+14.7
CLEVELAND	105	+13½	+12.8
GRAND RAPIDS	87	+10	+11.4
PITTSBURGH	55	+ 6	+10.9
SPRINGFIELD	70	+ 7½	+10.7
BRIDGEPORT	78	+ 8	+10.2
TOLEDO	37	+ 3	+ 8.1
NEWARK	174	+13	+ 7.4
MONTREAL	50	+ 3	+ 6
BALTIMORE-WASH.	98	+ 4	+ 4
TORONTO	95	+ 3	+ 3.1
WATERBURY	106	+ 3	+ 2.8
NEW YORK	139	+ 4	+ 2.8
CHICAGO	278	+ 7	+ 2.5
DETROIT	280	+ 6	+ 2.1
PHILADELPHIA	132	+ 1	+ .7
LOS ANGELES	117	+ ½	+ .4
SYRACUSE	49	...	...
JACKSON	...	...	...
MILWAUKEE	93	− ½	− .53
BOSTON	119	− 3½	− 2.9
DAYTON	96	− 3	− 3.1
ROCHESTER	86	− 5	− 5.8
LANCASTER	43	− 3	− 6.9
NEW HAVEN	103	−15½	−15
ANDERSON	30	− 4½	−15
PROV.-ATTLEBORO	54	−10½	−19.4

MEMBERSHIP May 1, 1943 = 2941
MEMBERSHIP Nov. 1, 1943 = 3032
GAIN IN MEMBERSHIP = 91
Percent of Gain 3%

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Divine Brothers Company, Utica, N. Y.
Hanson-Van Winkle-Munning Co., Matawan, N. J.
Harrison & Co., Inc., Haverhill, Mass.
Lasalco, Inc., St. Louis, Mo.
L'Hommedieu & Sons Co., Chas. F., Chicago, Ill.
Pennsylvania Salt Mfg. Co., Philadelphia, Pa.
Stutz Mfg. Co., Geo. A., Chicago, Ill.
Udylite Corp., The, Detroit, Mich.

BUYERS' GUIDE

CHROMIUM SERVICE

Harshaw Chemical Co., The, Cleveland, Ohio
Kocour Co., Chicago, Ill.
Stutz Mfg. Co., Geo. A., Chicago, Ill.
Udylite Corp., The, Detroit, Mich.

CLEANERS—METAL—ALKALI

Baker Co., M. E., Cambridge, Mass.
Blakeslee & Co., G. S., Chicago, Ill.
Detrex Corporation, Detroit, Mich.
Enthone Co., New Haven, Conn.
Gumm Chemical Co., Frederick, Kearny, N. J.
Hanson-Van Winkle-Munning Co., Matawan, N. J.
Harshaw Chemical Co., The, Cleveland, Ohio
Kocour Co., Chicago, Ill.
Lasalco, Inc., St. Louis, Mo.
L'Hommedieu & Sons So., Chas. F., Chicago, Ill.
MacDermid, Inc., Waterbury, Conn.
Meaker Co., The, Chicago, Ill.
Magnus Chemical Co., Inc., Garwood, N. J.
Magnuson Products Corp., Brooklyn, N. Y.
Mitchell-Bradford Chemical Co., Bridgeport, Conn.
Oakite Products, Inc., New York, N. Y.
Puritan Mfg. Co., The, Waterbury, Conn.
Pennsylvania Salt Mfg. Co., Philadelphia, Pa.
Phillips Mfg. Co., Chicago, Ill.
Stevens, Inc., Frederic B., Detroit, Mich.
Stutz Mfg. Co., Geo. A., Chicago, Ill.
Sulphur Products Co., Greensburg, Pa.
Udylite Corp., The, Detroit, Mich.
Wyandotte Chemicals Corp., Wyandotte, Mich.

CLEANERS—METAL—EMULSION

Baker Co., M. E., Cambridge, Mass.
Detrex Corporation, Detroit, Mich.
Enthone Co., New Haven, Conn.
Gumm Chemical Co., Frederick, Kearny, N. J.
Hanson-Van Winkle-Munning Co., Matawan, N. J.
Lasalco, Inc., St. Louis, Mo.
MacDermid, Inc., Waterbury, Conn.
Magnus Chemical Co., Inc., Garwood, N. J.
Magnuson Products Corp., Brooklyn, N. Y.
Oakite Products, Inc., New York, N. Y.
Puritan Mfg. Co., The, Waterbury, Conn.
Pennsylvania Salt Mfg. Co., Philadelphia, Pa.
Phillips Mfg. Co., Chicago, Ill.
Stevens, Inc., Frederic B., Detroit, Mich.
Stutz Mfg. Co., Geo. A., Chicago, Ill.
Wyandotte Chemicals Corp., Wyandotte, Mich.

CLEANERS—METAL—SOLVENT

A.B.C. Chemical Co., Waterbury, Conn.
Baker Co., M. E., Cambridge, Mass.
Chlorine Products Corp., Westvaco, New York, N. Y.
Detrex Corporation, Detroit, Mich.
Gumm Chemical Co., Frederick, Kearny, N. J.
Hanson-Van Winkle-Munning Co., Matawan, N. J.
Lasalco, Inc., St. Louis, Mo.
L'Hommedieu & Sons Co., Chas. F., Chicago, Ill.
Maas & Waldstein Co., Newark, N. J.
MacDermid, Inc., Waterbury, Conn.
Magnus Chemical Co., Inc., Garwood, N. J.
Magnuson Products Corp., Brooklyn, N. Y.
Mechanical Process Co., South Orange, N. J.
Mitchell-Bradford Chemical Co., Bridgeport, Conn.
Oakite Products, Inc., New York, N. Y.
Puritan Mfg. Co., The, Waterbury, Conn.

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CLEANERS—METAL—SOLVENT

Pennsylvania Salt Mfg. Co., Philadelphia, Pa.
Phillips Mfg. Co., Chicago, Ill.
Stevens, Inc., Frederic B., Detroit, Mich.
Stutz Mfg. Co., Geo. A., Chicago, Ill.
Udylite Corp., The, Detroit, Mich.
Wyandotte Chemicals Corp., Wyandotte, Mich.
Zapon Division, Atlas Powder Co., Stamford, Conn.

DEBURRING MACHINES

Divine Brothers Co., Utica, N. Y.
Lea Mfg. Co., The, Waterbury, Conn.
Packer Machine Co., The, Meriden, Conn.
Stevens, Inc., Frederic B., Detroit, Mich.
Sturgis Products Co., The, Sturgis, Mich.

DEGREASING EQUIPMENT—SOLVENT

A.B.C. Chemical Co., Waterbury, Conn.
Baker Co., M. E., Cambridge, Mass.
Blakeslee & Co., G. S., Chicago, Ill.
Detrex Corporation, Detroit, Mich.
Hanson-Van Winkle-Munning Co., Matawan, N. J.
International Conveyor & Washer Corp., Detroit, Mich.
Lasalco, Inc., St. Louis, Mo.
L'Hommedieu & Sons Co., Chas. F., Chicago, Ill.
MacDermid, Inc., Waterbury, Conn.
Magnus Chemical Co., Inc., Garwood, N. J.
Mechanical Process Co., South Orange, N. J.
Phillips Mfg. Co., Chicago, Ill.
Stevens, Inc., Frederic B., Detroit, Mich.
Stutz Mfg. Co., Geo. A., Chicago, Ill.
Udylite Corporation, The, Detroit, Mich.

DRYERS

Blakeslee & Co., G. S., Chicago, Ill.
Hanson-Van Winkle-Munning Co., Matawan, N. J.
Lasalco, Inc., St. Louis, Mo.
L'Hommedieu & Sons Co., Chas. F., Chicago, Ill.
Magnus Chemical Co., Inc., Garwood, N. J.
Meaker Co., The, Chicago, Ill.
Stutz Mfg. Co., Geo. A., Chicago, Ill.

DRYERS—CENTRIFUGAL

Baker Co., M. E., Cambridge, Mass.
Hanson-Van Winkle-Munning Co., Matawan, N. J.
Lasalco, Inc., St. Louis, Mo.
L'Hommedieu & Sons Co., Chas. F., Chicago, Ill.
MacDermid, Inc., Waterbury, Conn.
Meaker Co., The, Chicago, Ill.
Stutz Mfg. Co., Geo. A., Chicago, Ill.
Udylite Corp., The, Detroit, Mich.

EQUIPMENT, PLATING—AUTOMATIC AND SEMI-AUTOMATIC

Baker Co., M. E., Cambridge, Mass.
Ceilcote Co., The, Cleveland, Ohio
Enthone Co., New Haven, Conn.
Gumm Chemical Co., Frederick, Kearny, N. J.
Hanson-Van Winkle-Munning Co., Matawan, N. J.
Hay Co., Jacob, Chicago, Ill.
Heil Engineering Co., Cleveland, Ohio
Lasalco, Inc., St. Louis, Mo.
L'Hommedieu & Sons Co., Chas. F., Chicago, Ill.
MacDermid, Inc., Waterbury, Conn.
Meaker Co., The, Chicago, Ill.
Stevens, Frederic B., Inc., Detroit, Mich.
Stutz Mfg. Co., Geo. A., Chicago, Ill.
Udylite Corp., The, Detroit, Mich.

FILTERS

Alsop Engineering Corp., Milldale, Conn.
Baker Co., M. E., Cambridge, Mass.
Enthone Co., New Haven, Conn.
Gumm Chemical Co., Frederick, Kearny, N. J.

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FILTERS

Hanson-Van Winkle-Munning Co., Matawan, N. J.
Industrial Filter & Pump Mfg. Co., Chicago, Ill.
Lasalco, Inc., St. Louis, Mo.
L'Hommedieu & Sons Co., Chas. F., Chicago, Ill.
MacDermid, Inc., Waterbury, Conn.
Meaker Co., The, Chicago, Ill.
Sparkler Mfg. Co., Mundelein, Ill.
Stevens, Inc., Frederic B., Detroit, Mich.
Stutz Mfg. Co., Geo. A., Chicago, Ill.
Udylite Corp., The, Detroit, Mich.

GENERATORS

Baker Co., M. E., Cambridge, Mass.
Gumm Chemical Co., Frederick, Kearny, N. J.
Hanson-Van Winkle-Munning Co., Matawan, N. J.
Lasalco, Inc., St. Louis, Mo.
L'Hommedieu & Sons Co., Chas. F., Chicago, Ill.
MacDermid, Inc., Waterbury, Conn.
Meaker Co., The, Chicago, Ill.
Stevens, Frederic B., Inc., Detroit, Mich.
Stutz Mfg. Co., Geo. A., Chicago, Ill.
Udylite Corp., The, Detroit, Mich.

GLUE—POLISHING WHEEL

Advance Polishing Wheels, Inc., Chicago, Ill.
Baker Co., M. E., Cambridge, Mass.
Buckingham Products Co., The, Detroit, Mich.
Burns Mfg. Corp., E. Reed, Brooklyn, N. Y.
Divine Brothers Company, Utica, N. Y.
Hanson-Van Winkle-Munning Co., Matawan, N. J.
Lasalco, Inc., St. Louis, Mo.
Lea Mfg. Co., The, Waterbury, Conn.
L'Hommedieu & Sons Co., Chas. F., Chicago, Ill.
Stutz Mfg. Co., Geo. A., Chicago, Ill.
Udylite Corp., The, Detroit, Mich.

GRINDERS—BELT

Divine Brothers Co., Utica, N. Y.
Hammond Machinery Builders, Inc., Kalamazoo, Mich.
Lasalco, Inc., St. Louis, Mo.
Stutz Mfg. Co., Geo. A., Chicago, Ill.

GRINDING MACHINES SPECIAL

Acme Mfg. Co., Detroit, Mich.
Divine Brothers Co., Utica, N. Y.
Packer Machine Co., The, Meriden, Conn.

GRINDERS PORTABLE

Hammond Machinery Builders, Inc., Kalamazoo, Mich.
Stutz Mfg. Co., Geo. A., Chicago, Ill.

LACQUER

Egyptian Lacquer Mfg. Co., The, New York, N. Y.
Maas & Waldstein Co., Newark, N. J.
Michigan Chrome & Chemical Co., Detroit, Mich.
United Chromium, Inc., New York, N. Y.
Udylite Corp., The, Detroit, Mich.
Zapon Division, Atlas Powder Co., Stamford, Conn.

LACQUER—SPRAY EQUIPMENT

Baker Co., M. E., Cambridge, Mass.
Ceilcote Co., The, Cleveland, Ohio
Paasche Airbrush Co., Chicago, Ill.

LATHES—POLISHING AND BUFFERS

Acme Mfg. Co., Detroit, Mich.
Baker Co., M. E., Cambridge, Mass.
Divine Brothers Company, Utica, N. Y.
Hammond Machinery Builders, Inc., Kalamazoo, Mich.
Hanson-Van Winkle-Munning Co., Matawan, N. J.
Lasalco, Inc., St. Louis, Mo.
L'Hommedieu & Sons Co., Chas. F., Chicago, Ill.

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LATHES—POLISHING AND BUFFERS

MacDermid, Inc., Waterbury, Conn.
Puritan Mfg. Co., The, Waterbury, Conn.
Stevens, Inc., Frederic B., Detroit, Mich.
Stutz Mfg. Co., Geo. A., Chicago, Ill.
Udylite Corp., The, Detroit, Mich.

METAL WORKING LUBRICANTS

Magnus Chemical Co., Inc., Garwood, N. J.
Stutz Mfg. Co., Geo. A., Chicago, Ill.

PLATING CHEMICALS

McGean Chemical Co., Cleveland, Ohio
Merck & Co., Rahway, N. J.

POLISHING MACHINES—AUTOMATIC

Acme Mfg. Co., Detroit, Mich.
Divine Brothers Co., Utica, N. Y.
Packer Machine Co., The, Meriden, Conn.

RACK COATINGS

A.B.C. Chemical Co., Waterbury, Conn.
Baker Co., M. E., Cambridge, Mass.
Ceilcote Co., The, Cleveland, Ohio
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Lasalco, Inc., St. Louis, Mo.
L'Hommedieu & Sons Co., Chas. F., Chicago, Ill.
Maas & Waldstein Co., Newark, N. J.
MacDermid, Inc., Waterbury, Conn.
Michigan Chrome & Chemical Co., Detroit, Mich.
Stevens, Inc., Frederic B., Detroit, Mich.
Stutz Mfg. Co., Geo. A., Chicago, Ill.
Udylite Corp., The, Detroit, Mich.
United Chromium, Inc., New York, N. Y.
U. S. Stoneware Co., The, Akron, Ohio
Wyandotte Paint Products Co., Rack ote Division, Wyandotte, Mich.
Zapon Division, Atlas Powder Co., Stamford, Conn.

RECTIFIERS

Baker Co., M. E., Cambridge Mass.
Enthone Co., New Haven, Conn.
General Electric Co., Bridgeport, Conn.
W. Green Electric Co., Inc., New York, N. Y.
Gumm Chemical Co., Frederick, Kearny, N. J.
Hanson-Van Winkle-Munning Co., Matawan, N. J.
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Udylite Corporation, The, Detroit, Mich.

RHEOSTATS

Baker Co., M. E., Cambridge Mass.
Hanson-Van Winkle-Munning Co., Matawan, N. J.
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MacDermid, Inc., Waterbury, Conn.
Meaker Co., The, Chicago, Ill.
Stevens, Inc., Frederic B., Detroit, Mich.
Stutz Mfg. Co., Geo. A., Chicago, Ill.
Udylite Corporation, The, Detroit, Mich.

RUST PROOFING SYSTEMS

Detrex Corporation, Detroit, Mich.

SOAP

Abbott Ball Company, The, Hartford, Conn.
Baker Co., M. E., Cambridge Mass.
Hanson-Van Winkle-Munning Co., Matawan, N. J.
Harshaw Chemical Co., The, Cleveland, Ohio
Lasalco, Inc., St. Louis, Mo.
L'Hommedieu & Sons Co., Chas. F., Chicago, Ill.
MacDermid, Inc., Waterbury, Conn.

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SOAP

Magnus Chemical Co., Inc., Garwood N. J.
Magnuson Products Corp., Brooklyn, N. Y.
Puritan Mfg. Co., The, Waterbury, Conn.
Stutz Mfg. Co., Geo. A., Chicago, Ill.

SOLUTION CONTROL METHODS

Hanson-Van Winkle-Munning Co., Matawan, N. J.
Kocour Co., Chicago, Ill.
Lasalco, Inc., St. Louis, Mo.
Stutz Mfg. Co., Geo. A., Chicago, Ill.
Udylite Corporation, The, Detroit, Mich.

SOLUTIONS—NICKEL—TIN—LEAD, ETC.

Zialite Corporation, Worcester, Mass.

SOLVENT—RECOVERY SERVICE

A.B.C. Chemical Co., Waterbury, Conn.
Baker Co., M. E., Cambridge, Mass.
Mechanical Process Co., South Orange. N. J.
Phillips Mfg. Co., Chicago, Ill.

STRIPPING SOLUTIONS—LACQUERS

Detrex Corporation, Detroit, Mich.
Enthone Co., New Haven, Conn.
Gumm Chemical Co., Frederick, Kearny, N. J.
Lasalco, Inc., St. Louis, Mo.
L'Hommedieu & Sons Co., Chas F., Chicago, Ill.
Maas & Waldstein Co., Newark, N. J.
Magnuson Products Corp., Brooklyn, N. Y.
Michigan Chrome & Chemical Co., Detroit, Mich.
Oakite Products, Inc., New York, N. Y.
Pennsylvania Salt Mfg. Co., Philadelphia, Pa.
Puritan Mfg. Co., The, Waterbury, Conn.
Stevens, Inc., Frederic B., Detroit, Mich.

STRIPPING SOLUTIONS—LACQUERS

Stutz Mfg. Co., Geo. A., Chicago, Ill.
Wyandotte Chemicals Corp., Wyandotte, Mich.
Wyandotte Paint Products Co., Rackote Division, Wyandotte, Mich.

STRIPPING SOLUTIONS—METALS

Baker Co., M. E., Cambridge, Mass.
Lasalco, Inc., St. Louis, Mo.
L'Hommedieu & Sons Co., Chas F., Chicago, Ill.
MacDermid, Inc., Waterbury, Conn.
Magnus Chemical Co., Inc., Garwood, N. J.
Magnuson Products Corp., Brooklyn, N. Y.
Pennsylvania Salt Mfg. Co., Philadelphia, Pa.
Puritan Mfg. Co., The, Waterbury, Conn.
Stevens, Inc., Frederic B., Detroit, Mich.
Stutz Mfg. Co., Geo. A., Chicago, Ill.
Sulphur Products Co., Greensburg, Pa.
United Chromium, Inc., New York, N. Y.

TANKS—CERAMIC

Baker Co., M. E., Cambridge, Mass.
Ceilcote Company, The, Cleveland, Ohio
Enthone Co., New Haven, Conn.
Hanson-Van Winkle-Munning Co., Matawan, N. J.
Heil Engineering Co., Cleveland, Ohio
Lasalco, Inc., St. Louis, Mo.
L'Hommedieu & Sons Co., Chas. F., Chicago, Ill.
MacDermid, Inc., Waterbury, Conn.
Stevens, Inc., Frederic B., Detroit, Mich.
Storts Welding Co., Meriden, Conn.
Stutz Mfg. Co., Geo. A., Chicago, Ill.
Udylite Corporation, The, Detroit, Mich.
U. S. Stoneware Co., The, Akron, Ohio

TANKS—GLASS LINED

Alsop Engineering Corp., Milldale. Conn.

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TANKS—STEEL LINED

Baker Co., M. E., Cambridge, Mass.
Ceilcote Company, The, Cleveland, Ohio
Enthone Co., New Haven, Conn.
Hanson-Van Winkle-Munning Co., Matawan, N. J.
Heil Engineering Co., Cleveland, Ohio
Industrial Filter & Pump Mfg. Co., Chicago, Ill.
Lasalco, Inc., St. Louis, Mo.
L'Hommedieu & Sons Co., Chas. F., Chicago, Ill.
MacDermid, Inc., Waterbury, Conn.
Meaker Co., The, Chicago, Ill.
Mitchell-Bradford Chemical Co., Bridgeport, Conn.
Stevens, Inc., Frederic B., Detroit, Mich.
Storts Welding Co., Meriden, Conn.
Stutz Mfg. Co., Geo. A., Chicago, Ill.
Udylite Corporation, The, Detroit, Mich.
U. S. Stoneware Co., The, Akron, Ohio

TANKS—WOOD

Baker Co., M. E., Cambridge, Mass.
Ceilcote Company, The, Cleveland, Ohio
Enthone Co., New Haven, Conn.
Hanson-Van Winkle-Munning Co., Matawan, N. J.
Heil Engineering Co., Cleveland, Ohio
Lasalco, Inc., St. Louis, Mo.
L'Hommedieu & Sons Co., Chas. F., Chicago, Ill.
MacDermid, Inc., Waterbury, Conn.
Meaker Co., The, Chicago, Ill.
Stevens, Inc., Frederic B., Detroit, Mich.
Storts Welding Co., Meriden, Conn.
Stutz Mfg. Co., Geo. A., Chicago, Ill.
Udylite Corporation, The, Detroit, Mich.

TEMPERATURE CONTROLS

Plating Processes Corp., Holyoke, Mass.
Sarco Company, Inc., New York, N. Y.
Stevens, Inc., Frederic B., Detroit, Mich.

TESTING INSTRUMENTS

Baker Co., M. E., Cambridge, Mass.
Hanson-Van Winkle-Munning Co., Matawan, N. J.
Industrial Filter & Pump Mfg. Co., Chicago, Ill.
Kocour Co., Chicago, Ill.
Lasalco, Inc., St. Louis, Mo.
L'Hommedieu & Sons Co., Chas. F., Chicago, Ill.
Mac Dermid, Inc., Waterbury, Conn.
Stevens, Inc., Frederic B., Detroit, Mich.
Stutz Mfg. Co., Geo. A., Chicago, Ill.
Udylite Corporation, The, Detroit, Mich.

USED EQUIPMENT

Baker Co., M. E., Cambridge, Mass.
L'Hommedieu & Sons Co., Chas. F., Chicago, Ill.
Stutz Mfg. Co., Geo. A., Chicago, Ill.

WASHERS—METAL PARTS

Blakeslee & Co., G. S., Chicago, Ill.
Detrex Corporation, Detroit, Mich.
Lasalco, Inc., St. Louis, Mo.
Magnus Chemical Co., Inc., Garwood, N. J.
Meaker Co., The, Chicago, Ill.
Phillips Mfg. Co., Chicago, Ill.
Stutz Mfg. Co., Geo. A., Chicago, Ill.
Udylite Corporation, The, Detroit, Mich.

WHEELS—POLISHING

Advance Polishing Wheels, Inc., Chicago, Ill.
Baker Co., M. E., Cambridge, Mass.
Buckingham Products Co., The, Detroit, Mich.
Burns Mfg. Corp., E. Reed, Brooklyn, N. Y.
Divine Brothers Company, Utica, N. Y.
Hanson-Van Winkle-Munning Co., Matawan, N. J.
Kocour Co., Chicago, Ill.
Lasalco, Inc., St. Louis, Mo.
L'Hommedieu & Sons Co., Chas. F., Chicago, Ill.
Puritan Mfg. Co., The, Waterbury, Conn.
Stevens, Inc., Frederic B., Detroit, Mich.
Stutz Mfg. Co., Geo. A., Chicago, Ill.
Udylite Corporation, The, Detroit, Mich.

BRANCH DIRECTORY

ANDERSON meets second Tuesday of every month at 7:30 p.m., at the Y. M. C. A., Anderson, Indiana. Secretary-Treasurer, E. L. McKinney, 2014 Fairview St., Anderson, Ind.

BALTIMORE-WASHINGTON meets at the Telford Buffeteria, 14th and Decatur Sts., N.W. Washington, D. C., the first Saturday of each month. Secretary-Treasurer, Abner Brenner, 6509 Fulton St., Chevy Chase, Md.

BOSTON meets at the Hotel Statler, Boston, Mass., first Thursday each month. Secretary, A. W. Garrett, 77 Neponset Ave., Dorchester, Mass.

BRIDGEPORT meets first Friday of each month at Chamber of Commerce Rooms, Stratfield Hotel. Secretary-Treasurer, Joseph G. Sterling, 134 Colony St., Bridgeport 8, Conn.

BUFFALO meets second Friday of each month at Hotel Statler, Buffalo, N. Y. Secretary J. C. Mays, 8436 W. Rivershore Dr., Niagara Falls, N. Y.

CHICAGO meets second Friday of each month at 8 p.m., Atlantic Hotel, 316 S. Clark St. Secretary, J. W. Hanlon, 3004 N. Whipple St., Chicago 18, Ill.

CINCINNATI meets on fourth Thursday of each month at 8 p.m., at Hotel Gibson, Cincinnati, Ohio. Secretary-Treasurer, Elliott W. Horning, 2425 Kenilworth Ave., Norwood 12, Ohio.

CLEVELAND meets first Saturday of each month at Cleveland Hotel. Secretary-Treasurer, G. B. Svenson, c/o Platers Supply Co., 2059 Hamilton Ave., Cleveland 14, Ohio.

DAYTON meets second Friday of each month at the Engineers Club, Dayton, Ohio. Secretary-Treasurer, W. M. Durnbaugh, R. R. 4 Xenia, Ohio.

DETROIT meets the first Friday of each month at the Hotel Statler. Secretary-Treasurer, F. L. Clifton, 16536 Inverness, Detroit 21, Mich.

GRAND RAPIDS meets second Friday of each month, 7:30 p.m., at the Browning Hotel. Secretary-Treasurer, C. E. Abel, 11 Scribner Ave., N.W., Grand Rapids 4, Mich.

HARTFORD meets third Monday of each month alternately at Hartford Electric Light Company, Hartford and at the Elks Club, corner South and Main Sts., Bristol, Conn. Special meetings are held at the New Britain Trade School, New Britain, Conn. Secretary-Treasurer, Savin Zavarella, 84 Darlin St., East Hartford 8, Conn.

INDIANAPOLIS meets at the Hotel Riley, the first Wednesday of each month. Secretary-Treasurer, Donald L. Patrick, 3145 North Illinois St., Indianapolis 8, Ind.

JACKSON meets second Tuesday of each month alternating between Hotel Porter at Lansing and Hotel Haves at Jackson. Secretary, E. J. Nordman.

LANCASTER meets second Friday of each month at 8 p.m., at Thaddeus Stevens Industrial School, Lancaster, Pa. Secretary-Treasurer, W. H. Fordney, 603 Marietta Ave., Lancaster, Pa.

LOS ANGELES meets the second Monday of each month, 6:30 p.m. at the Rossiyn Hotel, corner Fifth and Main Sts. Secretary-Treasurer, C. C. McLaren, 2236 Charnwood Avenue, Los Angeles, Calif.

MILWAUKEE meets first Friday of each month at Republican Hotel. Secretary-Treasurer, James Durnford, 2370 N. 32nd St., Milwaukee 10, Wis.

MONTREAL meets first Monday of each month at Mount Royal Hotel, Montreal, Quebec, Canada. Secretary-Treasurer, W. G. Finlay, 5670 16th Ave., Rosemount, Montreal.

NEWARK meets first and third Friday of each month at Hotel Robert Treat, Newark, N. J., at 8 p.m. Secretary-Treasurer, George Wagner, 1130 So. Long Ave., Hillside, N. J.

NEW HAVEN meets the first Tuesday of each month at Sterling Chemistry Laboratory, Yale University. Secretary-Treasurer, B. J. Gaffney, 40 Filbert St., Spring Glen, Hamden 14, Conn.

NEW YORK meets second and fourth Fridays of each month, in the Hotel Pennsylvania, 7th Ave. and 33rd St., New York City, N. Y. Secretary-Treasurer, Franklyn MacStoker, 25 Princeton St., Garden City, L. I., N. Y.

PHILADELPHIA meets fourth Friday of each month, in the Harrison Laboratory Building, University of Pennsylvania, 34th and Spruce Sts. Secretary, Paul Mentzer, 7324 Tabor Ave., Philadelphia 11, Pa.

PITTSBURGH meets first Thursday of each month, at 8 p.m. at the Bureau of Mines Building, 4800 Forbes St., Pittsburgh, Pa. Secretary-Treasurer, Frank Keller, 1102 Hiland Ave., Coraopolis, Pa.

PROVIDENCE-ATTLEBORO meets the third Monday of each month at the Crown Hotel. Secretary-Treasurer, Chas. C. Chace, 11 Friendly Road, Cranston 10, Rhode Island.

ROCHESTER meets third Friday of each month at the Rochester Chamber of Commerce, 55 St. Paul St., Rochester, N. Y. Secretary-Treasurer, Donald C. Blum, 672 Mt. Read Blvd., Rochester 6, N. Y.

SAN FRANCISCO meets the last Thursday of each month, usually at Angelo's, 4307 San Pablo Avenue, Oakland, Calif. Secretary-Treasurer, Arthur Kistler, 15th and Vermont Sts., San Francisco, Calif.

SPRINGFIELD meets the fourth Monday of each month at the Hotel Charles. Secretary-Treasurer, D. S. Hartshorn, Jr., 76 Edendale St., Springfield 4, Mass.

ST. LOUIS meets first Friday of each month at Central Y. M. C. A., 16th and Locust Sts., Secretary-Treasurer, C. T. McGinley, 8238 Monroe St., St. Louis, County 14, Mo.

SYRACUSE meets second Friday of each month at Bowne Hall, Syracuse University, Syracuse, N. Y. Secretary, George Simmons, 309 Park Ave., Herkimer, N. Y.

TOLEDO meets first Thursday of each month, in Room 201, of the Hilcrest Hotel, Toledo, Ohio. Secretary, Gaston Berseman, 718 Howland St., Fremont, Ohio.

TORONTO meets second Friday of each month at Royal York Hotel. Secretary-Treasurer, E. B. Creighton, 468 Deloraine Ave., Toronto, Ont., Canada.

WATERBURY meets second Friday of the month at Elton Hotel. Secretary-Treasurer, Spencer L. Hess, Apothecaries Hall Co., Waterbury 88, Conn.

A. E. S. OFFICERS

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They also Serve

WHO FIGHT THIS WAR AT HOME

★ Frankly, we at Udylite have been too busy fighting this fight for Victory in our own remote way to do much bragging about it

Udylite's products and services are practically unknown to the man on the street, the housewife or our boys and girls in the service.

In spite of this obscurity there are few pieces of fighting equipment today where metal finishing and corrosion resistance are necessary that have not benefited by the efforts of Udylite's army of employees —the years of intensive research for better methods and the high standard of dependability for which Udylite is known.

Udylite's men and women are part of this fight. The fruits of their labors are of vital importance to the fighting equipment of every branch of the service. Their knowledge and efforts have helped give our boys better fighting tools than the enemy.

To those of our customers who have so graciously "taken second" to vital government requirements on our services we extend our sincere thanks and the hope that we may soon again render them typical Udylite service.

L. K. Liddell

PRESIDENT

THE UDYLITE CORPORATION

1651 East Grand Blvd., Detroit, Mich.

★ OUR BOND QUOTA IS OVERSUBSCRIBED—IS YOURS? ★

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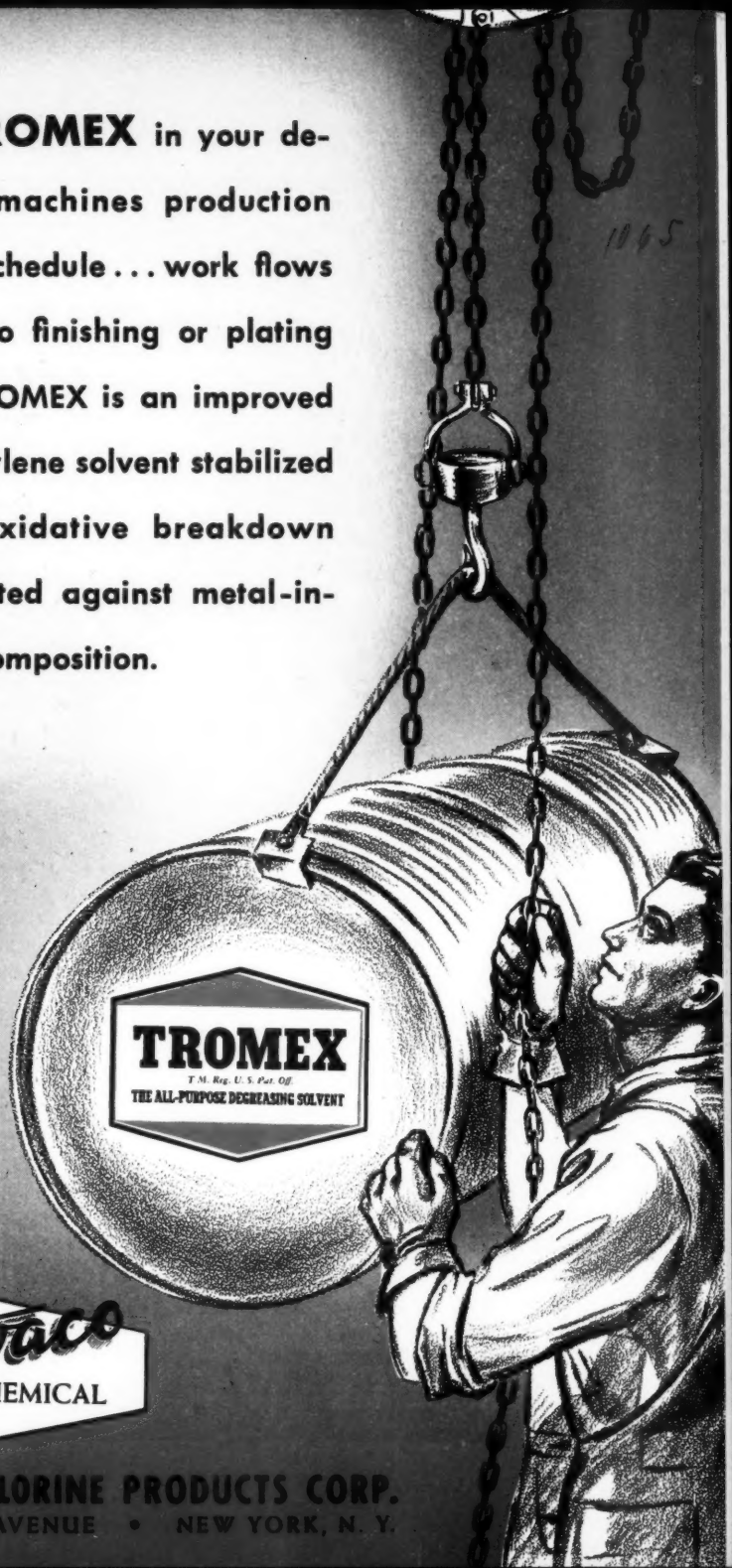

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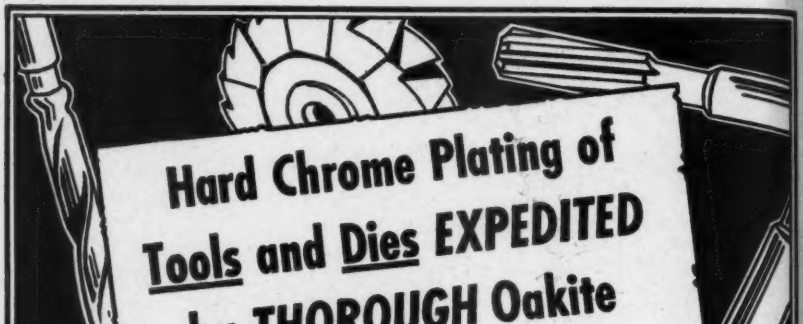

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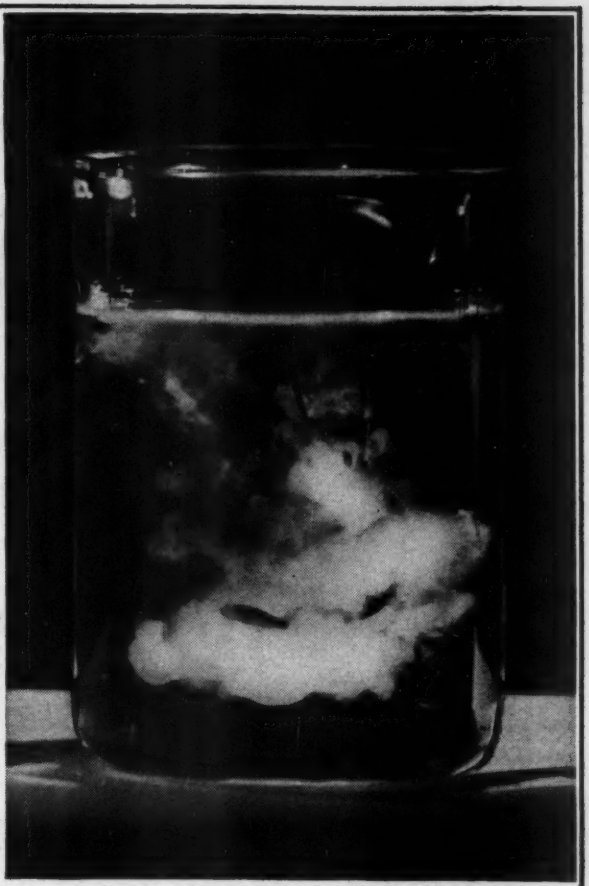
Enthone Emulsion Cleaner At Work

• Enthone Emulsion Cleaner is for *tough* cleaning problems . where you want to clean solid dirt and heavy oil films rapidly. It enables *complete* cleaning . . . the removal of both solid dirt and organic dirt. It means faster, cheaper cleaning. You have a way of preparing work for plating to insure adherent deposits — to make brighter deposits — to make less porous deposits. You can clean active metals such as zinc, aluminum and lead without etching or staining.

• If you have a difficult cleaning problem, let us help you. Tell us your problem. The advice and technical developments of the Enthone technical staff are yours for the asking.

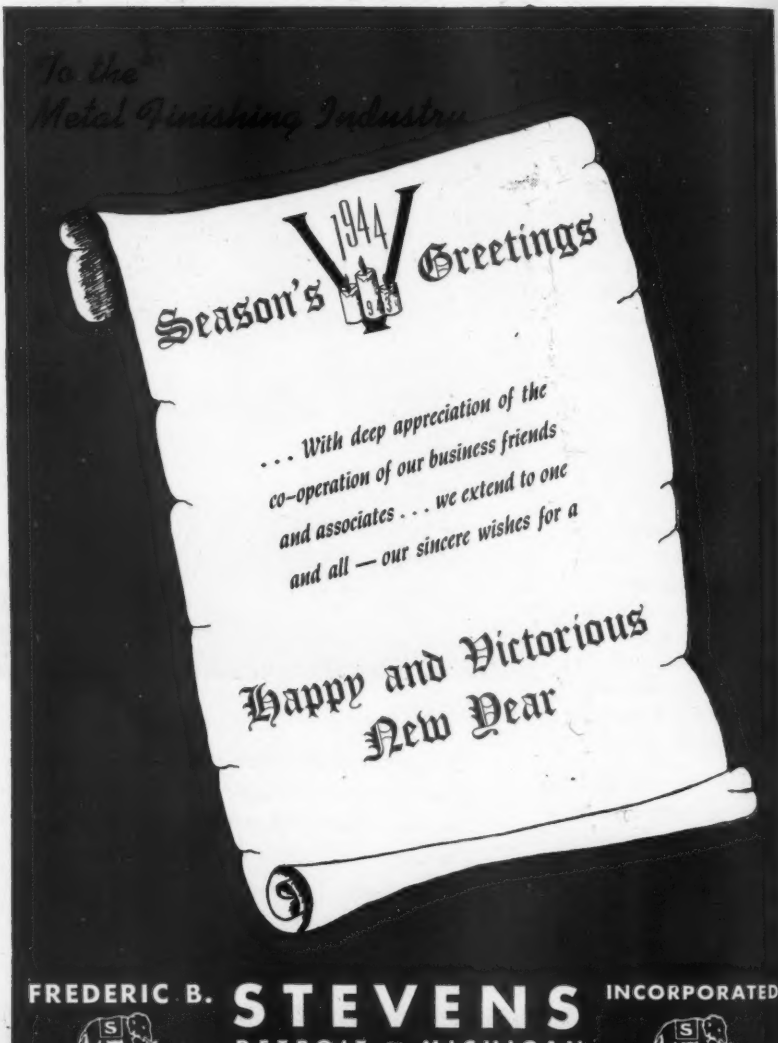


This photograph shows the rapid, complete dispersive action of Enthone Emulsion Cleaner. Notice that the oil and grease blended with the emulsifiable solvent are being finely dispersed — there is no clotting or jelling.

ENTHONE

THE **ENTHONE** CO.

442 ELM STREET NEW HAVEN 2, CONNECTICUT


To the
Metal Finishing Industry
Season's 1944 Greetings
. . . With deep appreciation of the
co-operation of our business friends
and associates . . . we extend to one
and all — our sincere wishes for a
Happy and Victorious
New Year
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